

FLIGHT

&
*The AIRCRAFT
ENGINEER.*

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 473. (No. 3, Vol. X.)

JANUARY 17, 1918.

[Weekly, Price 3d.
Post Free, 4d.]

Flight.

and The Aircraft Engineer.

Editorial Office: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.
Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828.

Annual Subscription Rates, Post Free.

United Kingdom ... 15s. 2d. Abroad... ... 20s. od.

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NOTICE OF REMOVAL.

The Offices—Editorial and Advertisement—of
"FLIGHT and The Aircraft Engineer"
are now at

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.
Telephone No.: Gerrard 1828.
Teleg. Address: "Truditur, Westcent, London."

EDITORIAL COMMENT.

"Newspapers are an essential part of our war organisation."—
(Sir Auckland Geddes, Minister of National Service.)

AT the conclusion of his despatch dealing with the battles of 1917 in the West, Sir Douglas Haig pays a splendid tribute to the work of the R.F.C. which, he says, in the discharge of duties, constantly increasing in number and importance, throughout the whole of the past year has shown the same magnificent offensive spirit which characterised its work during

the Somme battle, combined with **Haig Wants More** unsurpassed technical knowledge and Machines. practical skill. He then adds:

"The enemy, however, shows no sign of relaxing his endeavours in this department of war. While acknowledging, therefore, most fully the great effort that has been

made to meet the ever-increasing demands of this most important Service, I feel it my duty to point out once more that the position which has been won by the skill, courage, and devotion of our pilots can only be maintained by a liberal supply of the most efficient machines."

The need for more and yet more efficient machines is one that we have never ceased to impress upon those responsible for production, operatives as well as others, but this further direct appeal from the commander-in-chief of the armies in the field is one that goes more directly to the understanding than any number of reasoned arguments set forth by those outside the army, however well-informed and well-intentioned they may be. There is undoubtedly a tendency, which it must be admitted is understandable, to think that so long as the army does not cry out for more material, and make its cry heard among the mass of the public, all is well with everything. We are convinced that a great many people have believed that much of the outcry made by those in a position to gauge the need for more aircraft either did not know what they were talking about, or had some sort of axe to grind. "If," they argued, "Haig wanted more machines he would say so." Well, he has said so—not for the first time. The fact is that it is not *more* aeroplanes that are wanted—that does not go deep enough—for what is really required is a maximum effort. Every possible machine that can be turned out by ourselves and our Allies is wanted if we are, as we hope, to beat the Hun into a better frame of mind this year. We must organise our industries, speed up production by every legitimate means, and thus ensure that whoever may command our armies in the closing phases of the war shall not have to write as Sir Douglas Haig has felt himself compelled to do in his last despatch. True, his language is restrained and he contents himself by pointing out that "the position which has been won by the skill, courage and devotion of our pilots can only be maintained by a liberal supply of the most efficient machines." As a soldier writing in the knowledge that his despatch would be made public property he could not well have gone farther, but it is easy enough to read between the lines. We are supreme in the air, not on account of an overwhelming number of machines, but because of "the skill, courage and devotion of our pilots." And, if the commander-in-chief had been supplied with all the machines he required and was thus assured that future demands would be met, he would not

have needed to add the concluding words conveying that the position can only be maintained if the Air Council, the manufacturer of aircraft, and the operatives will do their best to help the armies to early victory. There must be no more slacking, no more maladministration, no more strikes on account of "principle." There is only one principle that matters—to beat the Hun, and to beat him this year.

Flax for Aeroplanes. The closing of the Russian ports and the growing demand for flax for aircraft fabric has led to the formation of a Flax Production Department of the Board of Agriculture. The intention is, it is stated, to make efforts to get 10,000 acres of the crop sown in the coming Spring so as to ensure an adequate supply for the year and to provide seed for next year's requirements. Flax-growing was at one time extensively practised in this country, but with the general decay of agriculture which followed on the growth of industrialism and other causes into which it is needless to enter here, it became comparatively a defunct industry. Yorkshire, Lincolnshire, Somerset and Fife were the chief centres, and it is in these counties that flax growing is to be principally revived. In the Yeovil district of Somerset and at Selby flax growing is still practised to some extent, and in these places the British Flax and Hemp Society and the University of Leeds have done much to encourage it.

The terms that are being offered to farmers in suitable districts seem to be such as ought to induce them to carry out the Board's desires without difficulty. The Government is to pay £8 10s. per ton for the total crop of seed and straw, and as a fair yield is from two to three tons per acre, and the seed for sowing is to be supplied free, there ought to be a very fair return to the farmer. Moreover, the latter is offered an additional inducement in the shape of a guaranteed minimum payment of £14 per acre for all land suitably managed, irrespective of the return of flax. It has also been arranged that in case labour trouble should be a deterrent, the Department will weed and harvest the flax at a level cost to the grower of £4 5s. per acre. Certainly the terms offered do not seem to err on the side of niggardliness.

This State encouragement of production of an essential like flax is certainly to be welcomed on its merits. If we are to have a strong air fleet after the war—and we have many times laid this down as vital to our existence as an Empire—it follows that we must do all possible to render ourselves independent of overseas sources of supply for everything connected with aircraft construction. Flax is just as essential as steel or aluminium and it is unthinkable that we should rest content to draw the major part of our supplies from Russia, or even that we should depend upon India for them. We must produce what flax we want within the British Isles and if it can only be done initially by such a system of encouragement as that we have outlined, then that encouragement must be given until such time as the farmer in suitable localities is able to appreciate that flax is a crop that it pays to cultivate on its merits, so to say.

The Fountain of Honour.

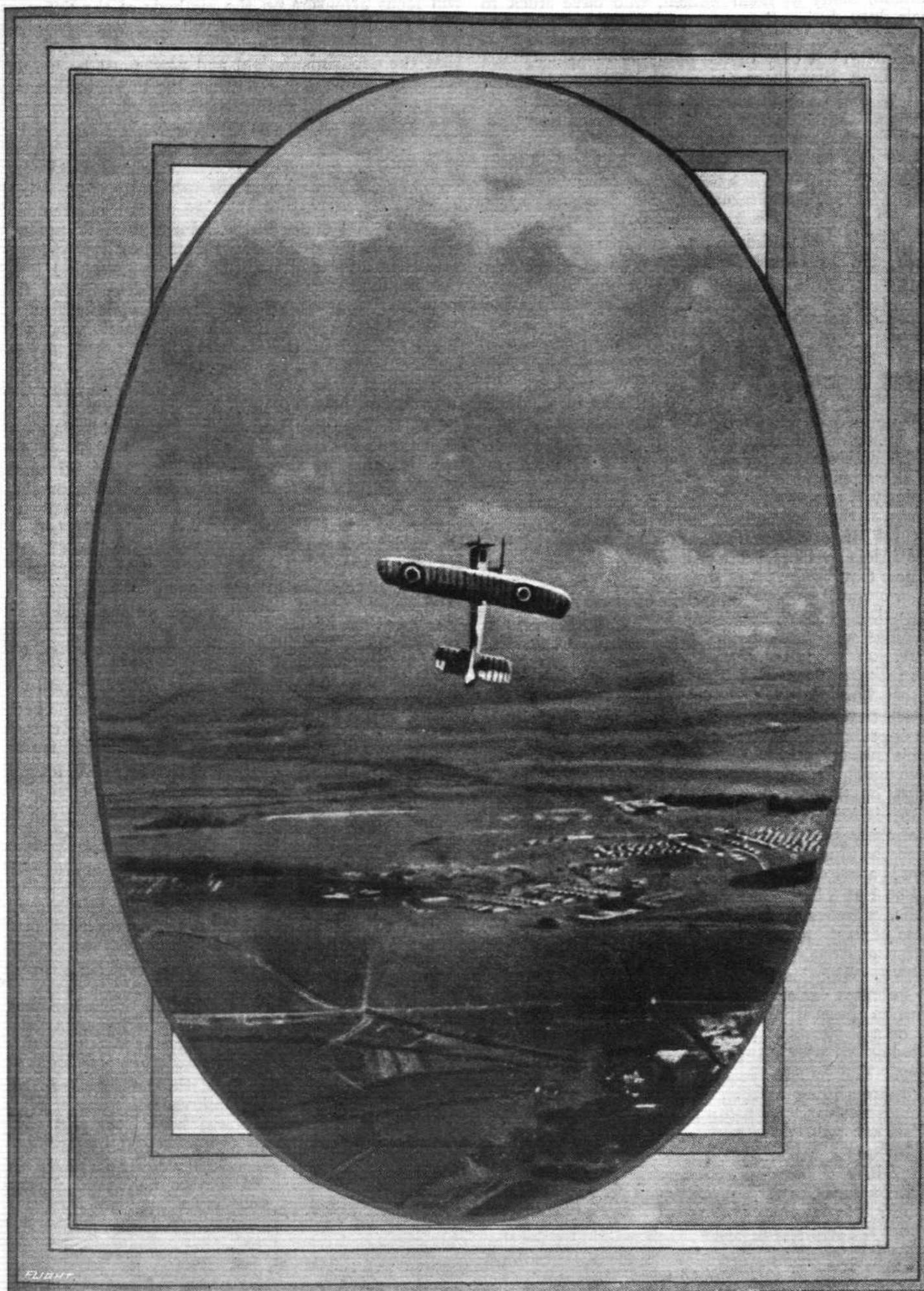
Since the last issue of "FLIGHT" was sent to press, yet another long list of honours conferred for war work—and other services, of which some are, to say the least, obscure—has been issued. In length

it is a record—more than fifteen hundred names adorned the pages of the *London Gazette* on this historic occasion. We are not disposed to be too critical of the list. The most that can be said is that it contains some names whose owners are entitled to our sympathy because of their juxtaposition to others.

There is this to be said in the matter of "honours" and decorations. It seems to be the fashion in these days of war for almost everyone to covet a piece of ribbon or an enamel cross or something of the sort to hang about his or her neck as a warranty that he or she has "done his (or her) bit." Well, if that be the fashion of the age, so be it. But why not extend the fashion a bit farther? Even the army seems to have been bitten by the craze for medals and decorations. In response to the popular demand the army now has its chevrons for overseas service, its gold wound stripe—about which there are two opinions among the soldiers—and its bronze star for service in France and Belgium in the first two months of the war. And all very well earned and deserved honours, too. Now there is growing up an agitation for the issue of a medal to the men who volunteered, without waiting to be dragged by the neck into the Service; while there is yet another appeal going forward for the issue of a decoration to those who were actually under arms during the qualifying period for the Mons star, but whose hard luck it was to be kept in this country. Although this desire for distinctions conflicts with what we have always regarded as one of the best traditions of the old British fighting services, it has nevertheless to be recognised that the democratisation—or, more properly, the nationalisation—of the services has brought about a change of atmosphere which results in things being done which would never have passed the blue pencil of the authorities even five years ago. Therefore, we say, if the New Armies and the New Navy, really desire these distinctions it is the clear business of the powers that be to sanction them. There is always the argument, and a weighty argument it is, that these men have been serving their country under circumstances of dire discomfort and peril for a pittance per day, and are clearly better entitled to decorations and distinctions than most of the recipients of the Order of St. Cuthbert who have not been, and do not intend to go, any nearer the trenches than they are compelled.

To return to the last honours list. We are very pleased indeed to see that His Majesty has seen fit to reward the services to the State of many of the humbler workers of the community. For instance, the medal of the British Empire has been conferred upon a number of telephone, telegraph and postal workers who remained on duty during air raids or even during bombardment from the sea. That is the class of service which is really deserving of recognition, and those who have received honour at the hands of the King need not be ashamed to acknowledge their membership of the most democratic order of chivalry in the world. There are others—but enough said for the moment.

As we have said earlier, we should really like in this direction to see these awards extended beyond the bounds of direct service to the State. In this way. There are many others besides postal and telephone servants—who are the direct employees of the State—who have done their duty to the community manfully and womanfully, if we may so put it, under circumstances of the greatest danger. For example, there



From "The Work and Training of the R.N.A.S."

One of the "Stunts" which make for confidence in the air. A Naval air-scout looping, photographed from another aeroplane.

are the omnibus and electric railway employees of London, many of them women, who have stuck to their duty during the worst periods of air raids and have carried on without thinking for a moment of their own safety, but only of the public convenience. We do submit that these are entitled to consideration, and we put it to the Premier that when next he is opening the floodgates of the fountain of honour—we trust we are not guilty of *lèse majesté*—he will see to it that the names of some of these humble heroes and heroines are included, even though they are *not* Government servants.

* * * * *

The British Museum.

As we hoped and anticipated, ways and means have been found of dispensing with the British Museum as a home for the Air Council. Lord Curzon announced in the House of Lords last week that it was "no longer necessary" to appropriate that building. Moreover, it has been found that to take over the Natural History Museum, which was also threatened, and to attempt the conversion of its galleries into public offices would be too costly and would lead to delay. The incident is thus happily closed, but there cannot be the slightest shadow of doubt that had it not been for the strenuous opposition of the public, and particularly the section which most prizes the educative values of these collections, both the British and the Natural History Museums would have followed the numberless hotels and clubs which have been absorbed by new Government departments.

Lord Sudeley was doubtless perfectly right in suggesting that the decision to appropriate these buildings was taken before the Government was in possession of full information. Indeed, we have it on the authority of one of the trustees of the British Museum that the Commissioner of Works himself never went near the place in connection with the appropriation proceedings. He left that to one of his subordinates, who does not appear to have taken much trouble to inform himself of the suitability of the building for its designated purpose before deciding to take it over. Sir Alfred Mond is notoriously out of sympathy with the objects for which the Museum exists; but even so, knowing that there is a very large mass of the people which regards it almost as a holy place—and being a servant of the public, moreover, it might have been thought he would at least have taken it to be his duty to give the matter some measure of personal attention. But not a bit of it. The Commissioner of Works is far too high and potent a personage to trouble himself about such trifles as these—they can be looked to by the office boy or a junior clerk! The whole thing appears to have been treated in a most unbecoming spirit of levity. The way the matter appeals to us is that if the appropriation of such a building as the British Museum is treated as being merely incidental to the day's work and is decided upon practically without a moment's consideration, what are we to think of the spirit in which so many other of London's great buildings have been commandeered for the public service? They seem to have been taken over without the slightest regard to their suitability for the purposes to which they have been applied; enormous expense has been incurred to even measurably fit them for occupation by their new tenants; and then in many cases it has been found necessary to look for more suitable premises and to clear out whole departments, again at enormous expense to the

nation. It is to be hoped that the museums incident will focus attention on the methods of the Office of Works and that some steps will be taken to control its appetite for public buildings. We are fully aware that the departments, old and new, must be housed somewhere, but it is surely not too much to demand that some care and circumspection should be exercised in the commandeering of quarters for them.

* * * * *

The Admiralty and the Air.

Among the recent changes in the personnel at the Admiralty there is one departure that we do not fully understand. In the list of new Staff appointments is included a "Director of the Air Division" whose duties are not specifically defined and it is this appointment that rather bewilders us for the moment. Were it not for certain collateral facts we should rest content with the thought that the duties of the new Director were in all probability to be confined to the operations of air craft with the fleet and that he would nowhere impinge upon the functions of the Air Council and the Air Force.

But there are certain signs abroad which appear to indicate that the Admiralty goes quietly on its way ignoring, if not altogether at least to some extent, the new order of things created by the passing of the Air Force Act. As examples we may refer to the recent order that R.N.V.R. officers attached to the R.N.A.S. are to wear wings with the letter "A" between; the detail change in uniform of observer officers; and other straws which show which way the wind tends to blow. Without the least desire to be either critical or unduly suspicious, we confess we do not altogether like it all. We cannot forget that it was the attitude of the Admiralty which rendered negative the efforts of the original Air Board, and that it was that attitude which for a considerable time exercised an effect on aircraft production which was, to say the least, the reverse of beneficial. However, there is no need to pursue this subject any farther—we can only "Wait and See."

To turn to another aspect of the matter, we are glad to note that in the making of appointments to the new Admiralty Staff, the question of seniority is not to carry weight. All appointments are to be made, in consonance with the Admiralty practice since the beginning of the war, purely on merit and the suitability of officers for the special work they are to be called upon to perform. That is entirely as it should be, and we would that the same methods obtained throughout the whole of the public services. Were it so we might have been spared seven-tenths of the waste and muddle that have characterised the conduct of the war. Indeed, we do not think it is going too far to say that had that rule been invariable use and applied all round, from top to bottom, the war would have been over and won 18 months ago. One of these days the Admiralty methods may penetrate universally into the whole of the public services—and then we shall get efficiency. Certainly the nation will never get value for its money while nepotism and senile seniority are the only roads to advancement.

* * * * *

Aeroplanes from Ireland.

The announcement, originally made in "FLIGHT," that the Government intends to erect an aeroplane factory in Ireland, has naturally given much satisfaction in the distressful country, and, according

to the newspapers, is "stimulating the national imagination and there is no lack of Irish recruits for the R.F.C." The Government is certainly to be congratulated on its new move, from more points of view than one. In the first place, we cannot for obvious reasons increase our facilities for aircraft construction too much. As we have so repeatedly insisted, what is wanted to establish aerial supremacy and to win the war is the exertion of the very maximum of effort and whether it is Ireland or any other part of the Empire which is called upon to assist in the task it is all to the good of the ultimate aim. Then the creation of an aircraft industry in Ireland will necessarily take more money into the country and assist materially in the solution of many of the problems which beset a settlement of the perennial Irish question, the root cause of which is undoubtedly to a great extent the poverty of the people. There is no better remedy for political discontent than material prosperity of the workers and if the erection of aircraft factories in Ireland had no other effect than the alleviation of some of the unrest which is at present rife, it would be altogether justified. When, however, we take this in conjunction with the acceleration of the aircraft programme which follows on each new departure of the kind, it is to be doubly applauded as a wise and statesmanlike move.

It is satisfactory, too, to receive the assurance that the decision of the Government is stimulating the imagination of the Irish. If only it would bring home to the 250,000 or so Irishmen of military age who are walking about at their ease while the whole of the available man-power of the rest of the Empire is fighting the battle of civilisation—and with it the right of Irishmen to live as free men—then it might be classed as the wisest thing this or any other British Government has done for many a long year. Let us hope that it may.

* * *

**The State
as
Profiteer.**

While State control of industries is so much in the air it is just as well that we should pay attention to what is going on around us, with a view to arriving at a proper appreciation of what State trading is likely to mean to the individual. There is another aspect of the matter to which immediate attention should be given, and that is the patent fact that the State is in many directions a worse and more unashamed profiteer than the butcher or the grocer. Lord Rhondda and other lights of the Government publicly condemn profiteering in food-stuffs and fulminate against the guilty, promising ruthless punishment to the malefactors who are making undue profits out of the national necessity. Yet we find that the Government is profiteering in food to a scandalous extent. Take tea, for example. We have before us a letter addressed to the Shipping Controller by the acting secretary of the Indian Tea Association, in which is set forth the whole story of tea freights since the beginning of the war. It is too long for reproduction, nor is it necessary to traverse the whole of the facts set forth, since they are not essential to the present argument. Briefly, it is disclosed that under an agreement between the Association and the shipping lines concluded in 1912 the rate of freight was fixed at 30s. per ton. Since the war, although this rate was held to be legally binding of the lines, the rate was raised on four separate occasions, and on September 30th last, when the

agreement expired, stood at 75s. per ton, less certain rebates which do not affect the main issue. Immediately the agreement expired, the Ministry of Shipping, which now has complete control of all rates, raised the freight to 300s. per ton. Moreover, it insists that this extortionate rate shall be paid at time of shipment and not as is usual against delivery, so that the unfortunate shipper has to pay up, loss or no loss!

That is briefly the case as set forth in the letter in question. If that is what Government control of commerce means, Heaven help the British business community and the consumer of overseas products after the war, unless Parliament turns a deaf ear to the demands that are being made, and will be, for a continuance of Government control. What, too, are the people going to say about this sort of thing, and about a Government which, with its tongue in its cheek, curses profiteering by the private trading firm and multiplies the freight rate on an essential commodity by four? What does it all mean? Does it mean that the Government wants to stop the import of tea, and has not the pluck to say that such a course is necessary? It certainly looks as though it might be so. The price of tea is "controlled" to a point at which it is obvious that it can only be sold to the public at a loss after the present usurious freight has been paid. That means that the growers will be unable to sell their tea or the importers to import it. Then the Government will say it is very sorry, but the growers have failed us, or there is no tonnage, or something of the sort. It is either that or the Government is frankly out to profiteer the nation's food. And, it will be observed that when the Government does set out to profiteer it does not do the thing by halves.

* * *

Food from Aerodromes. According to the *Times*, consideration is being given to a suggestion that part of the many aerodromes which—doubtless for the best military reasons—have been established on arable land should be placed under cultivation. It would be impracticable to devote any large space to this, but a modest border within the circumference of the aerodromes would, it is estimated, furnish many thousands of acres for intensive cultivation by soldiers in their spare time, aided by any outside labour that could be obtained through the medium of the county executive committees, who would also be able to supply seeds and tractors for ploughing where horses were not available.

The suggestion strikes us as being eminently practical and sound. As a matter of fact, there is quite a lot being done in this direction already at certain aerodromes in the country. Many of these establishments have been rendered entirely self-supporting in the matter of vegetables and such produce as can be grown by the men themselves, and every encouragement has been given by the authorities in this direction. There is no doubt, however, that where the character of the land lends itself to intensive cultivation much more could be done if a comprehensive and related scheme were thought out and applied.

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Air Raids on Germany.

DURING December there were, according to a German report, 13 Allied air attacks on German territory—six on the industrial districts of Lorraine and Luxemburg, and the rest on Freiburg, Baden, Mannheim, Saarbrücken and Zweibrücken. Seven persons were killed and 31 injured, including some French prisoners of war.

HONOURS.

DETAILS OF GALLANT DEEDS.

DETAILS are now available of the gallant deeds for which the awards announced on September 26th last were conferred. Those relating to the Air Services are as follows :—

Bar to the D.S.O.

Lieut. (temp. Capt.) W. A. Bishop, V.C., D.S.O., M.C., Can. Cav. and R.F.C.—For conspicuous gallantry and devotion to duty when engaging hostile aircraft. His consistent dash and great fearlessness have set a magnificent example to the pilots of his squadron. He has destroyed no less than 45 hostile machines within the past five months, frequently attacking enemy formations single-handed, and on all occasions displaying a fighting spirit and determination to get to close quarters with his opponents which have earned the admiration of all in contact with him. (D.S.O. gazetted June 18th, 1917.)

Distinguished Service Order.

2nd Lieut. (temp. Capt.) A. Coningham, M.C., R.F.C., Spec. Res.—With three other pilots he attacked an enemy machine which was protected by ten others, shot it down, and destroyed another one the same evening. Shortly afterwards he and two others attacked five of the enemy, and, although wounded and rendered unconscious for the moment, he succeeded in driving down two of the enemy. In spite of being much exhausted by loss of blood he continued his patrol until he was sure that no more enemy machines were in the vicinity, setting a splendid example of pluck and determination.

Temp. 2nd Lieut. W. F. Leech, Gen. List and R.F.C.—He carried out a number of valuable reconnaissances under difficult conditions, bringing back information which was invariably correct. When the situation was very obscure during an attack he correctly reported on it during the morning and in doing so was wounded in the arm. In spite of this he went out again in the afternoon and was severely wounded.

Lieut. (temp. Capt.) R. J. Lowcock, M.C., Notts and Derby R. and R.F.C.—For conspicuous gallantry and devotion to duty in carrying out artillery observations with great skill and success, in spite of very unfavourable weather and strong hostile opposition. On one occasion, although attacked by five hostile machines, he carried on his work until his machine was riddled with bullets and he was wounded in the leg. He then succeeded in landing in safety, having destroyed one of the hostile machines. He has also done some exceptionally fine contact patrol work.

2nd Lieut. (temp. Capt.) B. E. Sutton, M.C., Yeo. and R.F.C.—On very many occasions he carried out extensive and valuable reconnaissances and contact patrols at low altitudes, attacking infantry and transport with his machine gun, and taking photographs which proved of the greatest value in subsequent operations. By his energy, skill and courage he set a magnificent example to his squadron.

Temp. Maj. E. J. Tyson, M.C., Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty on many occasions. He has displayed the utmost fearlessness in carrying out photographic reconnaissances and artillery registration at extremely low altitudes, being continually under fire, but invariably doing excellent work and obtaining most valuable information by his great skill and daring.

2nd Lieut. C. W. Warman, M.C., Gen. List and R.F.C.—During two days whilst operating under very difficult conditions in high wind and against strong hostile opposition he destroyed three enemy machines and a balloon. He displayed the greatest dash and fearlessness in attacking an enemy aerodrome, and on one occasion when separated from his patrol and surrounded by twenty hostile machines he fought his way through, although his machine-gun was useless, by attacking them with his "Very" pistol; eventually regaining his own aerodrome with his machine much shot about. His wonderful coolness and courage have on all occasions been beyond praise.

Bar to the Military Cross.

Lieut. (temp. Capt.) S. H. Clarke, M.C., Wilts R., Spec. Res. and R.F.C.—For conspicuous gallantry and devotion to duty in carrying out contact patrols, reconnaissances, and artillery observation. He has frequently engaged bodies of hostile infantry at low altitudes, causing them heavy casualties, and although continually subjected to attacks from hostile machines and heavy machine gun fire from the ground, which considerably damaged his machine, he completed his work in every case. On one occasion he took some exceptionally successful and valuable photographs of the enemy's wire from a height of 1,200 ft., and has also carried out a number of successful shoots in co-operation with artillery. (Gazetted November 14th, 1916.)

Temp. Capt. P. F. Fullard, M.C., Gen. List and R.F.C.—

He has on many occasions displayed the utmost dash and fearlessness in attacking enemy aircraft at close range and in destroying at least eight hostile machines during a period of about ten days. His determination and fine offensive spirit have in almost every instance resulted in disaster to the enemy. (M.C. gazetted in this *Gazette*.)

Temp. 2nd Lieut. (Temp. Maj.) G. B. Ward, M.C., Gen. List and R.F.C.—When in one of three machines engaged on photographic reconnaissance they were attacked by a formation of nine hostile scouts. A determined resistance was offered to this attack, which was beaten off, and the photographs were then taken. Whilst returning to the aerodrome this officer turned back alone to take some further photographs, and observing six hostile machines approaching he promptly attacked them at close range, and after a sharp fight brought one down and drove off the remainder. He then completed his photography. (M.C. gazetted November 25th, 1916.)

Temp. Capt. N. W. Webb, M.C., Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty in aerial combats. He has destroyed three hostile machines and driven down four others completely out of control. By his spirit and gallantry he has set a fine example which has inspired the pilots of his flight to successfully attack enemy formations many times more numerous than their own. (M.C. gazetted January 1st, 1917.)

2nd Lieut. W. B. Wood, M.C., Hamps. R. and R.F.C.—For conspicuous gallantry and devotion to duty in attacking enemy aircraft. On several occasions he has shown admirable dash and determination in attacking hostile machines single-handed, destroying some and driving others down out of control. He has also displayed great daring in attacking enemy infantry and transport with machine gun fire at very low altitudes, in spite of attacks by hostile aircraft whilst so engaged. (M.C. gazetted September 17th, 1917.)

Military Cross.

2nd Lieut. R. B. Ashcroft, Notts and Derby R., Spec. Res. and R.F.C.—He rendered invaluable assistance to our infantry in the attack, flying several times through heavy barrage and using his machine gun at a very low altitude. He has consistently done splendid work in contact patrols and in attacking enemy infantry from low altitudes.

Lieut. J. F. Barham, A.S.C.—During a hostile air raid a bomb fell near a large tarpaulin shelter in which a number of badly wounded men were sleeping and unable to move, hit two paraffin drums, and caused it to catch fire. Although the entire shelter was at once in flames and liable to fall in at any moment, he succeeded with the help of one or two men in getting all the wounded safely out, displaying the utmost coolness and disregard of danger during this gallant action.

Temp. 2nd Lieut. N. E. Barracough, Gen. List and R.F.C.—For several months he has done work of a consistently high order as pilot, continually harrassing the enemy's infantry with machine-gun fire, and remaining on one occasion for two hours in extremely bad weather at a very low altitude on patrol before an offensive. On this occasion his observer was wounded by the intense fire to which his machine was subjected. His photographic reconnaissances and artillery observation have on all occasions been accurate and valuable.

Temp. Capt. A. Bell-Irving, Gen. List and R.F.C.—During the last five months he has taken part in many offensive patrols, the majority of which have entailed very heavy fighting. He has on numerous occasions attacked enemy formations double the strength of his own and dispersed them. On one occasion by his gallantry and self-sacrifice he saved another machine from certain destruction during continuous and severe fighting with ten enemy machines, returning to his lines with his own machine so shot about that it was unfit for any further use. His gallantry and devotion to duty have on all occasions deserved the highest praise.

Capt. R. B. Bourdillon, R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty on long-distance bomb raids. He has in all taken part in 17 successful raids, many of which were on distant objectives and in unfavourable weather, and has been exceptionally successful in attacking railways, frequently descending to very low altitudes with the greatest determination in order to make sure of his aim. He has set a very fine example by his courage and offensive spirit.

Temp. Lieut. A. Boyle, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty when engaged upon artillery observation work. By his determination and fearlessness he has been most successful in this important service, in addition to which he has carried out several successful contact patrols at low altitudes, although subjected to attack

from hostile machines and heavy machine-gun fire from the ground, which considerably damaged his machine.

2nd Lieut. G. T. W. Burkett, R.F.C., Spec. Res.—With his patrol he engaged a superior force of enemy machines, and although wounded early in the engagement, continued to fight. He brought down two hostile machines, and drove off two more whilst returning to our lines with his own machine badly damaged. In spite of this, however, he succeeded in making a good landing. He displayed splendid dash and coolness under very trying circumstances.

Temp. 2nd Lieut. R. M. Burnand, Gen. List, R.F.C.—For conspicuous gallantry and devotion to duty as pilot in an artillery squadron. He has a very large number of successful artillery shoots to his credit, and has specially distinguished himself in carrying out exceptionally long flights, during which he has attacked hostile infantry from a low altitude and furnished most valuable information to our artillery regarding the disposition of the enemy. He has always set a fine example of fearlessness and determination.

2nd Lieut. (Temp. Lieut.) J. Cairns, R.E. and R.F.C.—He has been continuously successful and skilful for five months, doing his own piloting and observing. He has frequently ranged two or more batteries simultaneously and brought back numerous valuable reconnaissance reports. He has also displayed the utmost fearlessness and a fine offensive spirit in attacking and destroying enemy strong points and ammunition dumps, acting in conjunction with our artillery. His work has, on all occasions, been marked by accuracy and the highest degree of initiative and energy.

Lieut. (Temp. Capt.) C. F. Collett, R.F.C. Spec. Res.—For conspicuous gallantry and devotion to duty as a leader of offensive patrols during a period of three weeks. He has on numerous occasions attacked large formations of enemy aircraft single-handed, destroyed some, and driven others down out of control. He has led his formation with great skill, and has on several occasions extricated them from most difficult positions, and in every engagement his gallantry and dash have been most marked.

Temp. Lieut. G. B. Crole, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty in aerial fighting on many occasions. By his determination and fine offensive spirit in attacking hostile aircraft he has continually proved his superiority over the enemy, destroying several enemy machines and driving many others down out of control.

2nd Lieut. W. L. Douglas, Lond. R. and R.F.C.—For conspicuous gallantry and devotion to duty in carrying out a large number of very successful photographic reconnaissances. He has repeatedly displayed the greatest fearlessness and determination, attacking enemy troops from a low altitude, and disregarding the attacks of hostile machines in superior numbers and adverse weather conditions, in order to obtain satisfactory photographs.

2nd Lieut. (Temp. Lieut.) R. M. D. Fairweather, H.L.I., Spec. Res., and R.F.C.—For conspicuous gallantry and devotion to duty when co-operating with artillery. He has carried out an exceptional number of successful shoots during the last eight months, on one occasion ranging a howitzer on a hostile battery destroying the ammunition, and wrecking the battery position. He has consistently shown great skill in carrying out his duties as observer.

2nd Lieut. (Temp. Lieut.) C. D. Fellowes, R.F.C. and Yeo.—In order to save an aeroplane which had fallen between our lines and those of the enemy he twice crawled over 300 yards of open ground in full view of the enemy, started up the engine and lying flat on the ground, allowed the machine to pass over him. He then ran after it and gained the pilot's seat. The machine left the ground, and as all the controls had been shot away, he shut off the engine, and drove it out of range of the enemy guns. He has displayed consistent gallantry in numerous air combats.

Temp. Capt. J. Fitz-Morris, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty on photographic and offensive patrols. On at least four occasions he has displayed great dash and courage in attacking hostile machines, two of which he completely destroyed, and has driven down others out of control.

Temp. Sec. Lieut. (Temp. Capt.) P. F. Fullard, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty when engaged in aerial combat. He has on four occasions attacked and destroyed enemy aircraft, and has in addition engaged in 25 indecisive combats, in which he has shown fine leadership great dash and determination to close with the enemy.

Temp. Lieut. F. J. Gibbs, S. Staff. R. and R.F.C.—For conspicuous gallantry and devotion to duty in attacking enemy aircraft and engaging hostile troops from the ground. He has in all driven down five enemy machines which were destroyed, and one other completely out of control. He has

also attacked and silenced a hostile battery with machine-gun fire, displaying on every occasion the same dash and determined offensive spirit.

Lieut. E. Gribben, R. Ir. Rif., Spec. Res. and R.F.C.—For conspicuous gallantry and devotion to duty on offensive patrols. In every combat he has been most conspicuous, continually attacking superior numbers of the enemy, destroying some and driving others down out of control. He fights with great dash and skill, and whenever any machine of his formation is in difficulties, he is invariably at hand to render assistance.

Temp. 2nd Lieut. (Temp. Lieut.) B. C. R. Grimwood, R.F.A. and R.F.C.—Having located a strong force of enemy infantry coming up to counter-attack, his machine was immediately afterwards hit by a shell, which wounded him severely and destroyed his wireless apparatus. His machine was obviously so damaged that no expert would have believed it could have possibly held together in the air, but in spite of this and of his wounds, he wrote out a message reporting the position of the enemy and dropped it on divisional headquarters, who were able to put nine batteries on to the target. His pluck and devotion to duty were worthy of the highest praise.

2nd Lieut. R. N. Hall, R.F.A., Spec. Res. and R.F.C.—He has shown consistent fearlessness and determination in attacking hostile aircraft at close range, destroying some and bringing others down out of control. On one occasion he attacked three enemy pilots, bringing two down in flames and leaving the third on fire. To accomplish this he crossed the lines at a height of 20 feet, his machine being severely damaged by machine gun fire from the ground. His gallantry and skill have on all occasions been most noticeable.

Lieut. (Temp. Capt.) R. W. P. Hall, R.F.A. and R.F.C.—For conspicuous gallantry and devotion to duty during a period of four days. He succeeded in ranging our guns most successfully and causing considerable damage to the enemy, in spite of being engaged by hostile aircraft in considerable numbers, and exposed to heavy anti-aircraft fire. On another occasion, when his machine had been practically destroyed by anti-aircraft shell and he had been wounded himself, he displayed wonderful skill and coolness in landing safely behind our lines.

2nd Lieut. (Temp. Capt.) H. R. Harker, R.F.C., Spec. Res.—For nearly a year he has carried out extremely valuable work in taking aeroplane photographs and leading bombing raids far behind the enemy lines, often in the face of great opposition and trying weather conditions. On a recent occasion while returning from a successful bombing raid his formation was attacked by more than twice its number, but by his fine offensive spirit and skilful leadership the enemy were dispersed. He has consistently set a splendid example to his brother officers.

2nd Lieut. (Temp. Capt.) S. G. Hodges, Wilts R. and R.F.C.—For many months he has done continuous successful work and photography, and by his skilful observations has been the means of inflicting great damage upon hostile batteries and ammunition dumps. He has consistently displayed great gallantry, frequently working under adverse weather conditions.

Temp. 2nd Lieut. S. Jolley, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty when being heavily shelled in his balloon. Although under fire for two hours from guns in four different positions, he engaged them in his balloon and silenced three. The shelling was accurate and his balloon was punctured, but he continued to remain up another two hours and reported the enemy's movements.

Temp. 2nd Lieut. H. N. King, Attd. N. Lan. R.—When a British aeroplane was forced down by enemy aircraft he jumped out of his advanced post and ran across No Man's Land, with an N.C.O. to render assistance. He then signalled for stretcher bearers and brought the pilot, who was seriously wounded, safely back to our lines. During all this time this officer and the three men who joined him were under heavy rifle fire, and one of the stretcher-bearers was shot dead on the way back. He displayed admirable promptitude and courage.

Lieut. Leathley, R. Inns. Fus. and R.F.C.—For conspicuous gallantry and devotion to duty in making photographic reconnaissances and in fighting enemy aircraft. Since April he has taken part in numerous combats, during which seven hostile machines have been driven down and destroyed either by him or his pilot, and although attacked by superior numbers of the enemy, his skill and offensive spirit have enabled him to carry out photographic reconnaissances.

2nd Lieut. (Temp. Lieut.) G. M. Lees, R.G.A. and R.F.C.—For conspicuous gallantry and devotion to duty on numerous occasions. His work has been invaluable both when engaged in ranging batteries on hostile trenches and in making daring and valuable reconnaissances at low altitudes over

the enemy's trenches. On at least two occasions, while on photographic duty he was attacked by superior numbers of the enemy, one of whom he shot down and dispersed the remainder, returning from his flight with a number of successful exposures. All his work has been of this high order.

Temp. 2nd Lieut. T. A. M. S. Lewis, Gen. List and R.F.C.—While acting as observer his patrol engaged a superior force of enemy scouts. His pilot was wounded, but they continued to fight, destroying one enemy machine. He was then severely wounded, but continued to work his gun lying on his back. By this means they were able to destroy a second enemy machine. Afterwards, when returning to our lines with their machine badly damaged, he and his pilot drove off two machines which were pursuing them, having displayed the greatest gallantry and presence of mind.

2nd Lieut. R. M. Makepeace, R.F.C. Spec. Res.—For conspicuous gallantry and devotion to duty whilst on an offensive patrol. He and his gunner shot down three enemy aircraft in quick succession, having attacked a large hostile formation, about 20 in number, with great dash and determination.

Lieut. R. A. Maybery, Lrs. and R.F.C.—After attacking two aerodromes in succession at very low altitudes, and inflicting considerable damage, he attacked and dispersed a number of mounted men and then attacked a goods train. He next attacked and shot down a hostile machine at 500 ft., and before returning attacked a passenger train. On numerous occasions he has attacked, single-handed, large hostile formations and set a fine example by his gallantry and determination.

Temp. Capt. W. A. McClatchie, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty in aerial fighting and reconnaissances on many occasions. He has shown great dash and fearlessness in engaging enemy infantry and taking photographs at very low altitudes, on one occasion after inflicting heavy casualties bringing his machine back, although it was very badly shot about, and crossing the lines under very heavy fire at 200 ft. On another occasion he attacked a hostile machine and drove it down, and although attacked by three enemy scouts on his way back he successfully drove them off.

2nd Lieut. D. U. McGregor, R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty in leading patrols against hostile formations. He has attacked and driven down enemy aircraft on several occasions, in spite of their being in superior numbers, displaying in every instance splendid dash and determination to get to close range.

Capt. W. E. Molesworth, R. Muns. Fus. and F.R.C.—For conspicuous gallantry and devotion to duty on offensive patrol. He has frequently led his patrol against superior numbers of the enemy, destroying some and dispersing others. He has also brought down two balloons, and himself to be a dashing and fearless pilot of great skill and determination.

Lieut. (Temp. Capt.) K. D. P. Murray, R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty on numerous occasions. He has displayed the utmost skill and fearlessness in ranging our batteries on hostile battery positions. Most of this work he has to carry out at a very low altitude and under very heavy fire, owing to the fact that the target was very well camouflaged, but, in spite of being repeatedly attacked and his machine several times damaged by anti-aircraft and machine gun fire, he was invariably successful.

Temp. 2nd Lieut. A. R. H. Moss, Gen. List and R.F.C.—During an engagement with several large hostile formations the two machines with which he was patrolling were put out of action. In spite, however, of being left alone he continued to attack, and engaged the enemy in so determined a manner that he and his pilot between them destroyed one and drove three others down completely out of control. He has performed several other fine feats, and has at all times set a most inspiring example by his dash and tenacity.

2nd Lieut. C. S. O'Grady, R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty in leading fighting patrols against superior numbers of enemy aircraft. He has himself brought down three enemy machines completely out of control, and others were seen to be destroyed, and his dash and determination when outnumbered by the enemy have continually won the highest praise.

2nd Lieut. K. R. Park, R.F.A. and R.F.C.—During an engagement with seven large hostile formations the two machines with which he was patrolling were put out of action. In spite, however, of being left alone, he continued to attack, and engaged the enemy machines in so determined a manner that he and his observer between them destroyed one and drove three others down completely out of control. He has performed several other fine feats, and has at all times set a most inspiring example by his dash and tenacity.

Temp. 2nd Lieut. A. A. N. Pentland, Gen. List and R.F.C.—On a recent occasion he flew to an aerodrome 15 miles behind the enemy lines, descended to within 20 ft. of the ground, and fired into eight hostile machines. On his return journey he attacked a train with considerable effect from a low altitude. He has in addition brought down several enemy machines.

Temp. 2nd Lieut. L. A. Powell, Glouc. R. and R.F.C.—For conspicuous gallantry and devotion to duty on several occasions in attacking enemy aircraft in superior numbers at close range, destroying some and driving down others out of control. He has also done excellent work on photographic reconnaissances, and has in every instance displayed the greatest gallantry and splendid offensive spirit.

Temp. 2nd Lieut. W. A. Pritt, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty in attacking a hostile aerodrome with exceptional dash and determination. Having reached his objective and dropped bombs from a very low altitude, he then attacked and destroyed two hostile machines almost as soon as they had left the ground. A machine gun then opened upon him from the aerodrome, which he immediately attacked. Both on his outward and homeward journey he was under very heavy machine gun fire and anti-aircraft fire. On another occasion he attacked a motor car, and shot one of the occupants from about 50 ft., afterwards attacking infantry on the march and inflicting severe casualties upon them. He has at all times shown constant gallantry and fine offensive spirit.

2nd Lieut. J. G. Sharp, R.G.A., Spec. Res., and R.F.C.—When on patrol his machine was brought down by an anti-aircraft gun and turned completely over on landing, pinning the pilot underneath. 2nd Lieut. Sharp, who had been thrown clear, immediately went to his assistance and pulled him out. They then ran towards the canal, which they swam, and reached our lines in safety. From the moment their machine was hit until they reached our lines they were under continual fire, but both escaped unwounded.

2nd Lieut. C. K. Smith, R.F.C., Spec. Res.—He has himself brought down four machines during his first month at the front, and has done most valuable work in attacking ground targets and hostile balloons. Of the latter he forced at least nine to be hauled down by his persistent attacks, during which he was repeatedly attacked himself by large hostile formations, and his efforts undoubtedly stopped all hostile balloon observation during a critical period. His efforts and fine offensive spirit and disregard of danger have set a very fine example.

Temp. Lieut. G. K. Smith, Gen. List, R.F.C.—When on long distance bombing raids during a period of four months he has consistently shown great dash and determination—on two occasions attacking aerodromes from low altitudes in spite of anti-aircraft fire, and bringing back valuable information.

Temp. 2nd Lieut. R. D. Starley, Gen. List and R.F.C.—When he had located a large force of the enemy infantry who were about to counter-attack, his machine was immediately afterwards hit by a shell, which destroyed the wireless, and so prevented his reporting what he had seen. His machine was obviously so badly damaged that no expert would have believed that it could possibly hold together in the air. In spite of this he went down and dropped a message on Divisional Headquarters, who were able to put nine batteries on to the counter-attack. He then managed to get his machine back to the aerodrome and confirmed the message by telephone. Throughout the operations he has on all occasions shown the same spirit of pluck and determination.

Temp. Lieut. J. A. Stevenson, Gen. List, and R.F.C.—For conspicuous gallantry and devotion to duty as a balloon observer. Working under very great difficulties owing to a high and gusty wind, he has furnished invaluable information to our artillery, continually ranging them on hostile batteries with complete accuracy and success in spite of the difficulties with which he had to contend. He has at all times set a very fine example of pluck and determination.

2nd Lieut. St. C. C. Tayler, R. Suss. R. and R.F.C.—For conspicuous gallantry and devotion to duty in leading offensive patrols against enemy aircraft. On five occasions at least he and his patrols have attacked and brought down hostile machines. These successes were almost entirely due to his very skilful piloting.

Temp. 2nd Lieut. R. N. Treadwell, Gen. List, R.F.C.—Although very severely wounded during a combat, he succeeded in bringing back his machine against a very strong wind to his aerodrome, saving both machine and observer by his great pluck and determination. When lifted out of his machine he was utterly exhausted. He has been concerned in many successful patrols and bomb raids, showing on all occasions conspicuous dash and devotion to duty.

Lieut. (temp. Capt.) F. McD. C. Turner, R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty as leader of long distance bombing raids and on photographic reconnaissances. He has taken part in many successful operations, in 24 of which he has acted as leader, and by his skill and determination has invariably done good work in spite of very adverse weather conditions, and though more than once attacked by enemy formations in greatly superior numbers to his own. He was the first officer to carry out a single machine long distance reconnaissance successfully, and has been more than once congratulated for the excellence of his photographic work.

Temp. Lieut. W. Wallace, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty when co-operating with artillery. He has consistently shown great skill as an observer, ranging siege batteries on hostile batteries with such accuracy that very severe damage was inflicted on the enemy. He has been responsible for the destruction of at least two hostile batteries and has carried out most valuable work for a very long period.

Temp. 2nd Lieut. C. W. Warman, Gen. List and R.F.C.—He has on all occasions proved himself to be an exceptionally skilful and gallant pilot, having in the space of six weeks brought down six machines and destroyed a hostile balloon. He has also driven down at least five other enemy machines, displaying a consistent determination to attack at close range regardless of personal danger.

2nd Lieut. G. A. Wells, R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty in engaging enemy infantry with machine-gun fire from low altitudes and attacking enemy aircraft. On one occasion, whilst attacking enemy strong points, his machine was so badly shot about that he was forced to return to his aerodrome. He resumed his patrol, however, as soon as he had obtained another machine, and on the following day he attacked a series of strong points with machine-gun fire, flying at a very low altitude for 40 minutes under intense machine-gun fire and field-gun barrage. He was eventually wounded in three places in the arm, but in spite of this he returned to his aerodrome and landed his machine safely.

Lieut. (temp. Capt.) H. D. Williams, R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty whilst carrying out artillery observation. Although attacked by two machines, he carried on with his work, driving one off and destroying the other. He has consistently shown courage

and perseverance in carrying out his work, and set a very fine example to his squadron.

Temp. 2nd Lieut. E. Wilson, Gen. List and R.F.C.—When he was in one of three machines engaged on photographic reconnaissances they were attacked by a formation of nine hostile scouts. A determined resistance was offered to this attack, which was beaten off, and the photographs were then taken. Whilst returning to the aerodrome, this officer turned back alone to take some further photographs, and observing six hostile machines approaching, he promptly attacked them at close range, and after a sharp fight brought one down and drove off the remainder. He then completed his photography.

Temp. Lieut. (temp. Capt.) H. W. Woollett, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty in engaging three enemy aircraft and following them down to a low altitude behind the enemy's lines, destroying one and driving down another out of control during the operations. He has done excellent work as a patrol leader, and has always displayed great gallantry in aerial combats, having brought down three other enemy machines in addition to those already mentioned.

2nd Lieut. A. C. Youdale, R.F.C., Spec. Res.—Working in conjunction with our infantry, he rendered valuable assistance in the attack, flying several times through our heavy barrage and using his machine gun at a very low altitude. His work has been consistently skilful and fearless during the whole of the operations, especially when engaged in contact patrols and in attacking enemy infantry from low altitudes.

Lieut. D. L. Burgess, Can. Infy., attd. R.F.C.—For conspicuous gallantry and devotion to duty in aerial fighting and on photography. As observer he has taken a large number of very successful photographs in spite of bad weather and continual opposition from the enemy. On four occasions at least he has assisted his pilot to drive down hostile aircraft.

Lieut. G. C. Rogers, Can. Infy. and R.F.C.—For conspicuous gallantry and devotion to duty on several occasions. He has rendered valuable service to the artillery in ranging them on hostile batteries. In order to carry out the shoots successfully he has flown long distances over the line under very heavy anti-aircraft fire, returning in nearly every case with his machine badly damaged by pieces of shell; and although frequently attacked by hostile aircraft, he engaged and drove them off with scarcely any interruption to the shoot.



Mentioned in Despatches.

THE following are included in the list of names brought to the notice of the Secretary of State for War by General Sir Archibald Murray, K.C.B., late Commander-in-Chief Egyptian Expeditionary Force, for gallant and distinguished conduct in the field or for other valuable services :—

Staff.

Capt. C. Fraser, N. Staffs (Temp. Lieut.-Col. R.F.C.).

Royal Flying Corps.

Temp. Capt. C. E. I. C. Anne, drowned ; Temp. Capt. F. D. Berridge, Gen. List ; Maj. R. A. Bradley, N. Staffs. R. ; Temp. Capt. W. T. Blake, Gen. List ; Maj. (Temp. Lieut.-Col.) A. G. Board, S. Wales Bord. ; Lieut. J. Brown (Spec. Res.) ; Capt. A. G. H. Carr, York and Lan. R. ; Temp. Capt. J. A. D. Dempsey (Gen. List) ; Capt. J. E. Dixon-Spain, Hamps. R. ; 2nd Lieut. G. C. Gardener, R. Ir. R. ; Capt. (Temp. Maj.) P. R. Grace (Spec. Res.) ; Lieut. R. C. Jenkins, M.C., D. Corn. L.I. ; Capt. (Temp. Maj.) A. K. H. O'Brien, D. Gds. (Spec. Res.) (Capt., ret. pay) ; Maj. E. H. M. O'Farrell, R. Ir. Fus. ; Capt. (Temp. Maj.) W. H. Primrose, Arg. and Suthd. Highrs. ; Lieut. (Temp. Capt.) W. E. L. Seward (Spec. Res.) ; Lieut. H. H. Thomas, R.F.A.

No. 246 Flight-Sergt. (Temp. Sergt.-Maj.) C. W. Baker ; No. 2192 Sergt. (acting Flight-Sergt.) W. J. Beer ; No. 1726, Flight-Sergt. D. P. Calder ; No. 2084 Flight-Sergt. W. H. Cross ; No. 1267 Sergt. R. J. H. Holland ; No. 4256 Sergt. (temp. Sergt.-Maj.) T. J. Huxter ; No. 12128 Flight-Sergt. J. W. Large ; No. 46445 Corp. W. J. Osborn ; No. 49457 Corp. R. C. Phelps ; No. 5775 Sergt. (temp. Sergt.-Maj.) H. W. Prickett ; No. 26056 1st Class Air-Mech. (acting Corp.) A. J. Shaw ; No. 204 Flight-Sergt. P. J. Waghorn.

Australian Flying Corps.

Capt. A. W. L. Ellis ; Capt. A. M. Jones, M.C. ; Lieut. V. P. Turner ; Capt. (temp. Maj.) R. Williams, D.S.O.

No. A/332 Flight-Sergt. H. Johnston ; No. A/105 Flight-Sergt. R. S. Robertson.

Russian Honours for R.F.C.

It was announced on January 14th that the following Russian Decorations have been awarded at various dates for distinguished services rendered during the course of the campaign :—

ORDER OF ST. GEORGE.

4th Class.

Capt. (Temp. Major) J. Valentine, D.S.O., late R.F.C., S.R.

ORDER OF THE WHITE EAGLE (WITH SWORDS).

Lieut.-Gen. Sir D. Henderson, K.C.B., D.S.O.

ORDER OF ST. STANISLAS.

1st Class.

Bt. Lieut.-Col. (Temp. Brig.-Gen.) D. S. MacInnes, C.M.G., D.S.O., R.E.

Empire Medal for Mr. H. Sykes.

In the list of awards issued on January 8th, but dated January 1st, of the Medal of the Most Excellent Order of the British Empire for services in connection with the war, in which great courage or self-sacrifice has been displayed, the following appeared :—

Herbert Sykes, for courage in testing aircraft in spite of severe accidents.

Medals for Courageous Telephonists, &c.

The list of awards of the Medal of the Most Excellent Order of the British Empire also included the names of the following telephone operators, &c., who have "displayed great courage and devotion to duty during air raids" :—

Fanny E. Beaumont (sorting clerk and telegraphist), Myra G. Bessent, Lilian A. Bostock, Marion Burrell (sorting clerk and telegraphist), Mabel E. Clarke, Lucie J. Dartnell (sorting clerk and telegraphist), B. A. F. Easter, Bertha Flintoff, Margaret A. L. Godfrey, Elsie L. Harman (supervisor), Alice A. Healey, Mabel Hunt, Ellen Johnson (sorting clerk and telegraphist), Philip C. Langridge (inspector, Engineering

Dept., G.P.O.), Ada M. Laws, Ethel M. Leeds, Edith B. Maw (supervisor), Annie D. Merralls (supervisor), Margaret Moody, Nellie E. A. Palmer, Ethel M. Pullinger, Minnie Sleeford (assistant supervisor), Frances E. E. Smith (supervisor), Florence E. Steggel, Fanny E. Steward (assistant supervisor), Edith E. Venus (supervisor), Nellie Ward (supervisor), Dorothy K. West, Dorothy F. Whibley, Gertrude Wood (supervisor).

Displayed great courage and devotion to duty during air raids and bombardment from the sea :—

Louisa M. Carlton (supervisor), Amelia J. Ward.

Displayed great courage and devotion to duty during air raids and on the occasion of a fire :—

Ethel N. E. Hickey.

Displayed courage and resource in maintaining telephonic communication during an air raid :—

James G. Ross (skilled workman, G.P.O.).

Displayed courage and resource while controlling officer in a neighbourhood exposed to many bombardments by seacraft and aeroplanes :—

Daniel V. Ward (inspector, Engineering Dept., G.P.O.).

Gallant Rescue from an Airship.

ANOTHER interesting award of the British Empire Medal is the following :—

Frederick Higham (special constable) swam to an airship which had fallen into a river and assisted two of the crew to reach the bank.

The Albert Medal for a Pilot.

In the *London Gazette* of January 11th, it was stated that the Albert Medal had been awarded to the following :—

Capt. Oliver Campbell Bryson, Flight-Commander, R.F.C.

On March 15th, 1917, Capt. (then Lieut.) Bryson, with 2nd Lieut. Hillebrandt as passenger, was piloting an aeroplane at Wye Aerodrome when, owing to a sideslip, the machine crashed to the ground and burst into flames. On disentangling himself from the burning wreckage Capt. Bryson at once went back into the flames, dragged Lieut. Hillebrandt from the machine, and, notwithstanding his own injuries, which were undoubtedly aggravated by his gallant efforts to rescue his brother officer from the fire, endeavoured to extinguish the fire on Lieut. Hillebrandt's clothing. Lieut. Hillebrandt succumbed to his injuries a few days later.

THE ROLL OF HONOUR.

REPORTED by the Admiralty :—

Missing.

Flight Sub-Lieut. A. G. Beattie, R.N.
Flight Sub-Lieut. F. Booth, R.N.
Flight Sub-Lieut. A. J. Dixon, R.N.

Accidentally Injured.

Act. Gunner E. Jarrett, R.N.
Flight Lieut. J. W. Pinder, R.N.

Reported by the War Office :—

Killed.

2nd Lieut. F. V. Bonyun, R.F.C.
Lieut. D. O. MacNicol, R. W. Kent, attd. R.F.C.
Lieut. W. N. Spragg, R.F.C.

Accidentally Killed.

1163 Sergt. C. Jackson, R.F.C.

Previously Missing, now reported Killed.

Lieut. A. T. Heywood, R.F.C.
Capt. T. A. Oliver, R.F.C.
2nd Lieut. J. F. Wightman, R.F.C.

Died.

2nd Lieut. W. Booth, Rif. Bgde., attd. R.F.C.
2nd Lieut. H. M. Matheson, R.F.C.

Died of Wounds.

106097 Sergt. W. Morris, R.F.C.
49720 2nd Air-Mech, P. Smith.
9507 1st Air-Mech, R. G. Streat, R.F.C.

Previously reported Wounded, now Reported Died of Wounds.

Capt. J. Bell, R.F.C.
Lieut. F. W. H. Thomas, Yeo., attd. R.F.C.
2nd Lieut. G. D. Williamson, R.F.C.

Wounded.

Lieut. D. J. Aitchison, R.F.A. and R.F.C.
Lieut. B. R. Apps, R.F.C.
Lieut. W. G. R. Bailes, R.F.C.
2nd Lieut. V. C. Baker, London, attd. R.F.C.
Lieut. D. G. Barnet, R.F.A. and R.F.C.
Lieut. F. A. Bates, Yeo. and R.F.C.
2nd Lieut. H. A. Biddle, Aus. F.C.
2nd Lieut. D. M. Christie, R.F.C.
2nd Lieut. H. R. Donovan, R.F.A., attd. R.F.C.
Lieut. R. O. Hobhouse, Som. L.I., attd. R.F.C.

Fatal Accidents.

WHILE flying in Hertfordshire 2nd Lieut. J. H. Greathead, R.F.C., was killed, the machine catching fire.

At an inquest in Norfolk on January 5th on Lieut. J. V. Knox, R.F.C., and 2nd Lieut. P. D. Parker, it was stated that a machine piloted by the latter on the previous day went up to 400 ft., when the engine stopped; the machine then made a spinning nose dive and the wreck burst into flames. Both officers were killed instantaneously. A verdict of "Accidental death" was returned.

2nd Lieut. D. W. B. Black was killed in Norfolk on January 3rd. At the inquest it was stated that the machine was in the air for three-quarters of an hour, and on landing was seen

2nd Lieut. H. Horrocks, R.F.C.

Lieut. A. O. Macgillicuddy, Aus. F.C.

2nd Lieut. H. I. J. Ridgway, R.F.C.

Lieut. L. H. Scott, Cent. Ont., attd. R.F.C.

Lieut. B. Strange, Yeo., attd. R.F.C.

Lieut. A. C. Upham, R.F.C.

2nd Lieut. J. H. M. Woods, R.F.C.

78431 2nd Air-Mech P. P. Allen, R.F.C.

63794 1st Air-Mech, C. T. Bass, R.F.C.

79014 W. Farmer, R.F.C.

107471 3rd Air-Mech, L. Farrell, R.F.C.

7309 Sergt. E. Fitzgerald, R.F.C.

66937 2nd Air-Mech, H. J. Goffe, R.F.C.

55964 2nd Air-Mech, S. V. Gorringe, R.F.C.

49438 1st Air-Mech, W. Love, R.F.C.

9898 2nd Air-Mech, C. S. W. Poole, R.F.C.

21124 2nd Air-Mech, T. Prince, R.F.C.

5020 Corporal W. Richards, R.F.C.

12263 1st Air-Mech, R. T. Ward, R.F.C., attd. R.F.A.

7643 Corp. F. E. Wilson, R.F.C.

Previously Reported Missing, now Reported Wounded and Prisoners in German Hands.

2nd Lieut. G. R. Edwards, R.F.C.

2nd Lieut. E. L. Fosse, R. War. R., attd. R.F.C.

2nd Lieut. G. R. Gray, R.F.C.

Missing.

2nd Lieut. J. Brydone, R.F.C.

2nd Lieut. H. E. Galer, R.F.A., attd. R.F.C.

2nd Lieut. A. L. Kidd, R.F.C.

Capt. A. E. McKay, R.F.C.

Lieut. C. W. Pearson, Northd. Fus., attd. R.F.C.

Capt. A. F. E. Pitman, Sea. Hrs., attd. R.F.C.

87657 1st Air Mech, G. Leach, R.F.C.

14262 1st Air Mech, W. Samways, R.F.C.

Missing, believed Drowned.

Lieut. W. A. Crawley, Cent. Ont., attd. R.F.C.

Previously Missing, now reported Prisoners in German hands.

2nd Lieut. T. W. Calvert, R.F.C.

Lieut. A. Dodds, N. Staffs., attd. R.F.C.

2nd Lieut. F. J. B. Hammersley, Mx. R., attd. R.F.C.

Lieut. C. F. Keller, London, attd. R.F.C.

2nd Lieut. E. F. Marchand, R.F.C.

Lieut. L. N. Ward, Aus. F. C.

to be in flames. The jury returned a verdict that deceased died from burns accidentally received through an aeroplane he was flying becoming ignited in the air, but that there was no evidence to show how the fire originated.

A verdict of "Accidental death" was returned at an inquest at Chessington (Surrey) on Arnold J. Warren. He went up in a machine piloted by 2nd Lieut. Morris, R.F.C., and in trying to avoid some trees when coming down the machine nose-dived and crashed to the ground.

Lieut. W. K. Anderson and 2nd Lieut. A. C. Perriman, both attached to the R.F.C., were killed near a Lincolnshire town through their machines coming too close together and colliding, owing to mist and snow. Both machines were in perfect working order, and no blame attached to anybody.

SIR DOUGLAS HAIG'S DESPATCH.

ONE of the outstanding features of the despatch published on January 8th from Field-Marshal Sir Douglas Haig, covering the operations in France from April to November last year, is the way in which bad weather, described as "consistently unpropitious," interfered with the operations. In spite of this serious handicap the Flying Services rendered excellent services and earned the thanks of the Commander-in-Chief as recorded in our last issue, p. 33.

There are several specific references to the work of the R.F.C. Writing with regard to the preparations for the Arras offensive, Sir Douglas Haig says :—

"The great strength of these defences (the Hindenburg line) demanded very thorough artillery preparation, and this in turn could only be carried out effectively with the aid of our air services.

"Our activity in the air, therefore, increased with the growing severity of our bombardment. A period of very heavy air fighting ensued, accumulating in the days immediately preceding the attack in a struggle of the utmost intensity for local supremacy in the air. Losses on both sides were severe, but the offensive tactics most gallantly persisted in by our fighting aeroplanes secured our artillery machines from serious interference and enabled our guns to carry out their work effectively. At the same time bombing machines caused great damage and loss to the enemy by a constant succession of successful raids directed against his dumps, railways, aerodromes, and billets."

With regard to the resumption of the Arras battle on April 16th, he says :—

"On April 16th our Allies launched their main offensive on the Aisne, and shortly after that date the weather on the Arras front began to improve. Our preparations made more rapid progress, and plans were made to deliver our next attack on April 21st. High winds and indifferent visibility persisted, however, and so interfered with the work of our artillery and aeroplanes that it was found necessary to postpone operations for a further two days."

In connection with the attack on the Messines Ridge, he says :—

"As the date for the attack drew near fine weather favoured the work of our airmen, and artillery and wire cutting, the bombardment of the enemy's defences and strong points, and the shelling of his communications, billets, and back areas continued steadily. Counter-battery work was undertaken with great energy and with striking success."

Regarding the preliminary stages of the third battle of Ypres in July, he says :—

"A definite aerial offensive had been launched, and the effective work of our airmen once more enabled our batteries to carry out successfully a methodical and comprehensive artillery programme.

"So effective was our counter-battery work, that the enemy commenced to withdraw his guns to places of greater security. On this account, and also for other reasons the date of our attack, which had been fixed for the July 25th, was postponed for three days. This postponement enabled a portion of our own guns to be moved further forward, and gave our airmen the opportunity to locate accurately the enemy's new battery positions. Subsequently a succession of days of bad visibility, combined with the difficulties experienced by our Allies in getting their guns into position in their new area, decided me to sanction a further postponement until July 31st."

There are following references to work in the actual attack on July 31st :—

"Later in the day heavy counter-attacks began to develop from South of the Menin road northwards to St. Julien. Our artillery caused great loss to the enemy in these attacks, although the weather was unfavourable for aeroplane work, and observation for our batteries was difficult. . . .

"The weather had been threatening throughout the day, and had rendered the work of our aeroplanes very difficult from the commencement of the battle. During the afternoon, while fighting was still in progress, rain began, and fell steadily all night. Thereafter, for four days, the rain continued without cessation, and for several days afterwards the weather remained stormy and unsettled."

With regard to the second attack near Ypres on August 16th he says :—

"In addition, weather conditions made aeroplane observation practically impossible, with the result that no warning was received of the enemy's counter-attacks, and our infantry obtained little artillery help against them. When, therefore, later in the morning a heavy counter-attack developed in the neighbourhood of the Wielte-Passchendaele road, our troops, who had reached their final objectives at many points in this area, also, were gradually compelled to fall back."

With regard to the counter-attacks between August 16th and September 23rd, he says :—

"The enemy's casualties in these many counter-attacks, as well as in all those subsequently delivered by him on the Ypres front, were consistently very heavy. Our constant successful resistance reflects the greatest credit on the high fighting qualities of our infantry, on the courage and devotion of our airmen, and upon the excellence of our artillery arrangements."

In his conclusion, dealing with the work of the various services, Sir Douglas Haig says :—

Royal Flying Corps.

"During the past year the part played by the Royal Flying Corps in modern battles has grown more and more important. Each successive attack has served to demonstrate with increasing clearness the paramount necessity for the closest co-operation between air and land arms. All must work together on a general plan towards our end—the defeat of the enemy's forces.

"In accordance with this governing consideration, co-operation with artillery, photography, and reconnaissance have been greatly developed and actively continued. Air fighting has taken place on an ever-increasing scale in order to enable the machines engaged upon these tasks to carry out their work. In addition, a definite aerial offensive, in which long distance raiding has taken a prominent place, has become a recognised part of the preparations for infantry attack.

"Throughout the progress of the battle itself low flying aeroplanes not only maintain contact with our advancing infantry, reporting their position and signalling the earliest indications of hostile counter-attack, but themselves join directly in the attack by engaging the enemy's infantry in line and support with machine-gun fire and bombs, by assisting our artillery to disperse hostile concentrations, and by spreading confusion among the enemy's transport, reinforcements and batteries.

"In answer to the concentrations of hostile machines on our front and the strenuous efforts made by the enemy to reassert himself in the air, the bombing of German aerodromes has been intensified, and has been carried out at great distances behind the enemy's lines. In more than one instance the enemy has been compelled to abandon particular aerodromes altogether as the result of our constant raids.

"Besides his aerodromes the enemy's railway stations and communications, his dumps and billets have also been attacked with increasing frequency and with most successful results.

"The persistent raiding by hostile aeroplanes and airships of English cities and towns, and the enemy's open disregard of the losses thereby caused to civilian life and property, have recently decided our own Government to adopt counter-measures. In consequence of this decision a series of bombing raids into Germany were commenced in October, 1917, and have since been continued whenever weather conditions have permitted.

"In the discharge of duties, constantly increasing in number and importance, the Royal Flying Corps throughout the whole of the past year has shown the same magnificent offensive spirit which characterised its work during the Somme battle, combined with unsurpassed technical knowledge and practical skill.

"The enemy, however, shows no sign of relaxing his endeavours in this department of war. While acknowledging, therefore, most fully the great effort that has been made to meet the ever-increasing demands of this most important service, I feel it my duty to point out once more that the position which has been won by the skill, courage and devotion of our pilots can only be maintained by a liberal supply of the most efficient machines.

"Before passing from the artillery and air services, I wish to refer to the increasingly efficient work of the Anti-Aircraft and Searchlight Sections in France. The growing activity of the enemy's bombing squadrons has thrown a corresponding strain on these units. They have responded to the call with considerable success, and the frequency with which hostile aircraft are brought down by our ground defences shows a satisfactory tendency to increase."



Back from Germany.

Included in the party of officers and men who have passed through Holland on their way home to England from Germany were the following :—Captain F. P. Don, Royal Flying Corps; Flight-Lieuts. G. Mack and A. H. V. Fletcher, both R.N.A.S.; Lieuts. H. A. Cooper, G. D. Hunter, C. H. Kelly, E. J. D. Townsend, F. G. Twyford, H. M. Taylor, and A. D. Whitehead, all of the R.F.C.

ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS.

THE FLYING SERVICES FUND, administered by

THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 3, Clifford Street, New Bond Street, London, W. 1.

	Subscriptions.	£	s.	d.
Total subscriptions received to Jan. 1st, 1918	12,526	12	10	
W. Murray..	1	0	0	
Staff and Workers of Gwynnes, Ltd. (fifty-fourth contribution)	10	15	4	
Total, January 15th, 1918 ..	12,538	8	2	
H. E. PERRIN, Secretary.				

3, Clifford Street, New Bond Street, W. 1.



R. J. L. (Dudley).—There is such a thing as an "aerial torpedo." The term conveys the impression of a projectile carrying some means for propulsion, and such weapons have been invented and, we believe, tried. In the raid reports of the lay press, however, the term is frequently used and, it should be pointed out, misused. What is referred to in these reports is generally a somewhat elongated bomb, which does not, however, carry any means of propulsion after being released, being propelled solely by gravity.

E. I. R. (Edinburgh).—In any twin-engined aeroplane there is always the possibility of one engine developing slightly more power than the other. If the difference is so great as to cause a sensible turning moment, this can be corrected in two ways. For instance, the rudder or rudders may be put over slightly to prevent the machine from turning. This constant ruddering will have the effect, smaller or greater according to the magnitude of the tendency to turn, of slowing down the machine somewhat. The other alternative referred to consists in throttling down the engine developing the greater power until the two engines develop the same power. This also will naturally have a tendency to slow down the machine, and the question then is which of the two methods gives the best result. Probably throttling down one engine will be found to be, in the majority of cases, the better way, as it has the advantage of relieving the pilot of the strain of constant ruddering. From your rough sketch we cannot identify the type of machine that it is meant to represent. The book referred to is not, we think, available for the general public, but only to officers of the Air Force.

A. B. (Putney).—When flying in a cloud which obscures the horizon, it is very difficult for a pilot to tell whether or not his machine is on an even keel. It is true that he will be able to tell from his speed indicator whether he is flying level or along a sloping path, but if at the same time the machine is making a turn, this is difficult to "feel," as it may be very slight. The compass should, theoretically, indicate a turn, but what frequently happens is this: A machine enters a cloud and the pilot watches his compass and speed indicator to see if he is keeping on his course. He then notices that the compass needle begins to move, and rudders in the opposite direction to check the turn. As he can see nothing except

his machine, the horizon being invisible through the clouds, he is very apt to over-correct, with the result that the machine begins to turn the other way. The rudder is then put over in the opposite direction, and very likely over-correction again occurs. In this way the machine swerves from side to side, each turn being accompanied by a bank. If this bank becomes steep the machine will probably get her nose down, and the speed indicator will register a high velocity. As the pilot may not be aware of the amount of bank, he will instinctively pull his control lever towards him in order to pull the machine out of the nose dive. If the machine is steeply banked the elevators will not "flatten out" the machine, since they are in a position somewhere near the vertical and therefore act as rudders. The compass continues to swing, and before long the pilot may not have the slightest idea of what is really happening to his machine, until he emerges from the cloud. So far as we are aware, there is no book published dealing, in addition to the question of structural design, with details to the extent of the articles on German aeroplanes that have appeared in "FLIGHT" from time to time. "The Design of Aeroplanes," by A. W. Judge, contains chapters on stresses in the main components, such as spars, ribs, &c., but does not deal with the design of fittings and similar small details.

W. R. H. D. (N.Z. Engineers).—The question of triplane efficiency was dealt with in an article by J. Hunsaker, published in "FLIGHT" of November 23rd, 1916, a copy of which can be obtained from our offices, the price being 6d. This article will probably furnish you with all the information you require.

A. E. B. (Plumstead).—We have no reliable information regarding the speed of a Gotha, but should put it down as somewhere in the neighbourhood of 90 m.p.h. It is inconceivable that its speed could ever reach anything like 200 m.p.h., even on a dive with the engines running. The wings would probably fold back long before such a speed was reached.

H. L. B. (Enfield).—(1) The engine fitted to the Sopwith triplane was a 130 Clerget. (2) We are not permitted to publish details of the performance of this machine. (3) This machine is an imaginary one. (4) 350 Rolls-Royce.

More Flax to be Grown.

At the request of the Flax Control Board, the Board of Agriculture will endeavour to make arrangements for an extension of the cultivation of flax in this country during 1918, and for dealing with the resulting crop. For this purpose the Board have constituted, temporarily, a special branch, entitled the Flax Production Branch, and have appointed Mr. W. Gavin to be Director of Flax Production, Mr. Alfred Wood, F.C.A., Secretary to the British Flax and Hemp Growers' Society, to be Assistant Director, and Dr. J. Vargas Eyre to be Technical Adviser.

The Board have further appointed the following committee to assist the Board in the carrying out of such extended measures of flax production as requirements arising from the war may render necessary:—

Mr. P. Middleditch (Chairman)	Mr. P. Guedalla
Mr. W. Norman Boase	Mr. A. G. Lupton
Mr. H. I. Bowring	Mr. James Mackie
Mr. J. G. Crawford	Dr. R. S. Morrell
Mr. H. E. Dale	Mr. W. M. Oliver
Capt. R. Williams Ellis	Mr. Wyatt Paul
Mr. R. Foster	Mr. C. Coltman Rogers
Mr. W. Gavin	Mr. W. S. Sykes
Mr. A. G. Gould	Mr. T. A. Wilson
	Mr. A. E. Wheeler

Mr. Alfred Wood has been appointed secretary to the Committee.

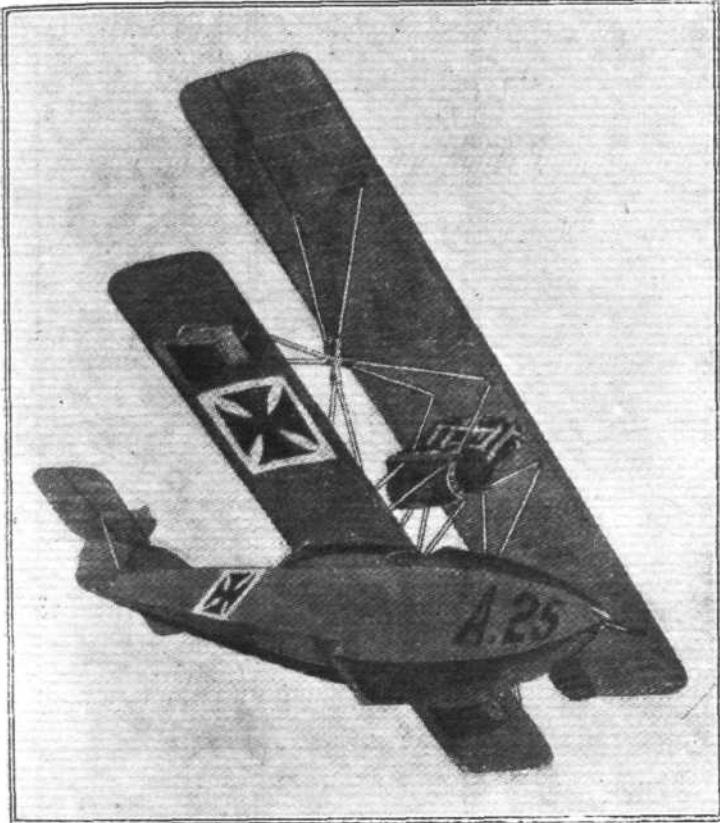
The address of the Flax Production Branch is 14, Victoria Street, London, S. W. 1.

FROM OTHER LANDS.

AUSTRIAN AGO AND LOHNER FLYING BOATS.*

Two types of Austrian seaplanes which have fallen into the hands of the Italians during the present year, and regarded as worthy of special note, are the Ago and Lohner types. The Ago Sea-Pursuit Biplane described here and shown in the accompanying line drawing, bore the number "A-25";

networks, each made up of a front spar and a rear spar and of adjacent struts in inclined planes connecting the spars, all converging toward the centre of the "star" located midway between upper and lower wings. The struts are of polished steel tubing with a fairing of laminated wood less than one mm. thick, providing a good streamlining effect.



Sketch showing the Austrian Ago Sea-Pursuit flying boat "A-25," in flight.

it was captured May 18th, 1917. The Lohner-type flying boat (described later in this article) was brought down on the night of January 12th, 1917, and it was marked "K-301."

1.—The Ago Sea-Pursuit Biplane.

In its general lines this machine does not differ much from all the flying boats of the Ago type. It does offer, however,

General Dimensions.

Span, upper plane	..	..	..	8.00 m.
Span, lower plane ..	..	..	..	7.38 m.
Chord, both planes ..	..	..	..	1.50 m.
Gap between planes ..	..	..	..	1.65 m.
Length overall ..	..	..	..	7.62 m.
Length of hull ..	..	..	..	6.50 m.
Maximum width of hull ..	..	..	..	1.00 m.
Motor, Warschawowski ..	..	..	..	218 h.p.
Propeller, diameter ..	..	..	..	2.72 m.

No lists of weights or performances are obtainable. The accompanying sketch will give an idea of the appearance of the "A-25" in flight.

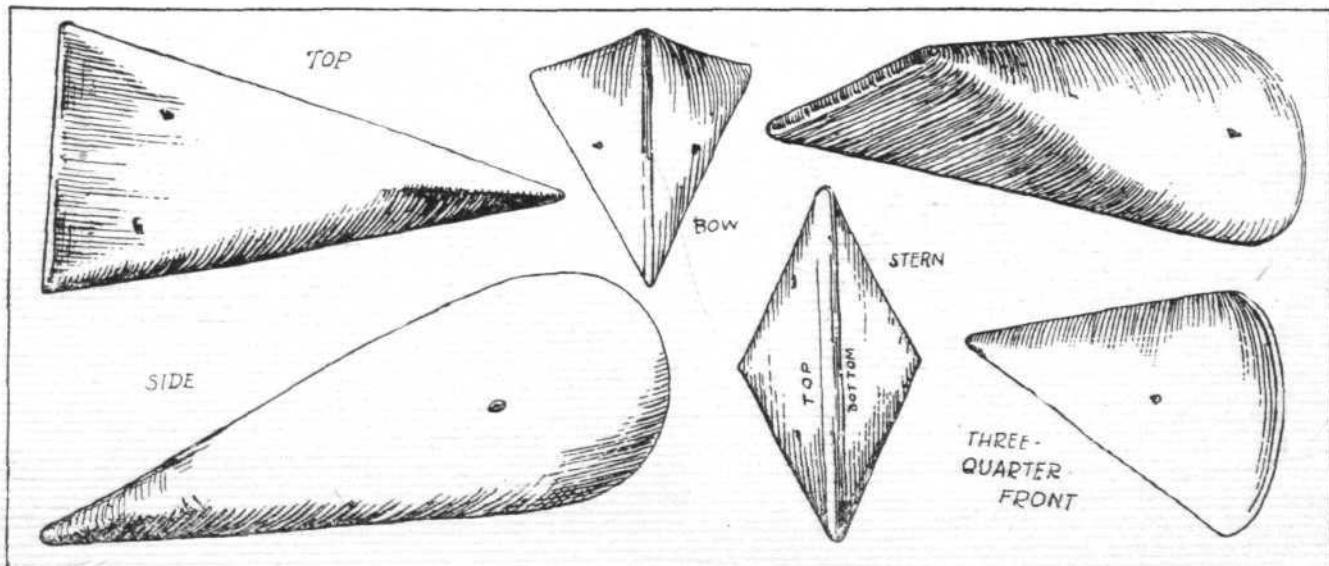
Control cables to the *ailerons* pass close to the struts of the turret and lead to the upper plane. Each *aileron* is about 1.40 m. long and .40 m. wide.

The construction solution of the hull, the great care with which the exposed parts have been shaped, the complete covering of the cables and control wires, and the streamline shape of the hull, all show a desire to cut down head resistances as much as possible. Similar care is shown in all details of construction to reduce to a minimum the weight of the machine without detriment to its strength.

The hull is 6½ m. long; width at the step, .95 m.; maximum width, 1 m.; distance from bow to step, 3.45 m.; height of step, .16 m. The shape of the body with the necessary lining at the bow and because of a careful laying of the side and bottom plating approaches very much the shape of a solid body of fairly good streamline form. The wing floats are spaced 5 m. apart. They are of streamline section, with flat sides, attached to the planes by means of one forward strut and two rear struts, with cross wire bracing between the struts.

The empennage or tail group is 2.38 m. in span, sustained in front by a vertical fin of very thin laminated wood, by two stays and two wire cables. Control wires of rudder flaps or elevators run through the fin. The rudder is 1.40 m. high by .80 m. wide.

The data given out concerning the motor is as follows:— "Motor: Hiero Flugmotor, Osterr. Ind. Werke Warschawowski, Eissler & Co.; A-G 6 cylinders; type, HN1096. It develops 218 h.p. at 1,400 revolutions per minute. Weight 314 kilograms. It is equipped with Bosch magnetos and small starting magnetos. Propeller: 220 h.p.h. Hiero 6 cylinders; diameter, 2.72 m.; pitch, 2.25-2.40."



The wing-float used on the "K-301," an Austrian 3-seater flying boat of the Lohner type.

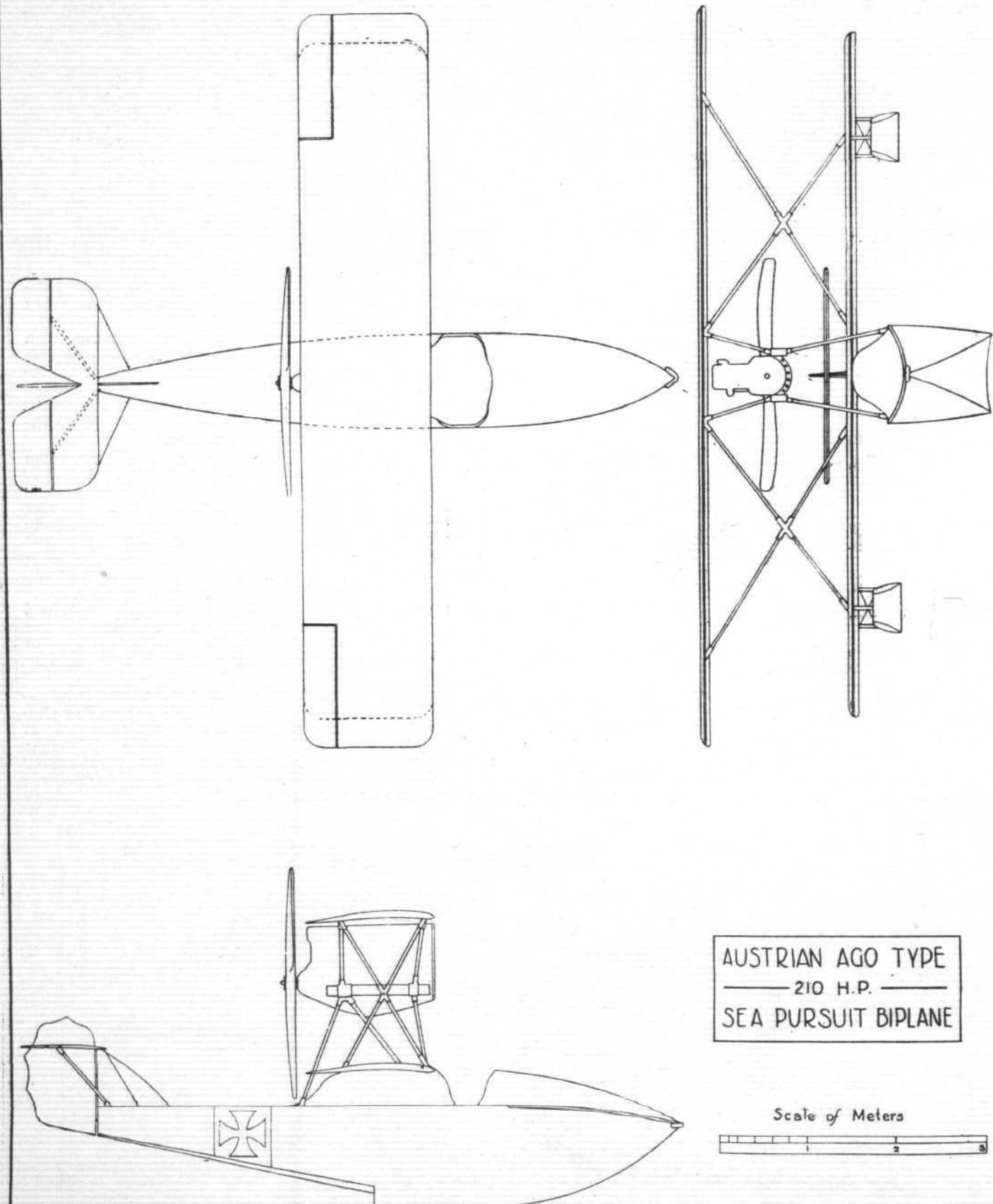
features that are original and worthy of mention. Most striking is the structure of the wing cell in which no wires are employed.

The wing cell may be considered as consisting of two cross-

"Aerial Age," U.S.A., from material supplied by the U.S.A. Government.

2.—The Lohner Flying Boat.

This is an enlarged machine of the Lohner type, retaining the V which is typical of the Lohner aeroplanes. There are six steel struts on either side and, two by two, are connected in transverse planes with steel tubes of 40 mm. outside



THE AUSTRIAN AGO TYPE PURSUIT FLYING BOAT.—Plan, side and front elevations to scale.

diameter. The distance between two struts in the direction of the brace is 1.30 m., and in the direction of the spar 2.17 m.

General Dimensions.

Span, upper plane ..	..	..	9.70 m.
Span, lower plane ..	..	..	7.20 m.
Chord, upper plane ..	..	..	2.70 m.
Chord, lower plane ..	..	..	2.20 m.
Hull, maximum length ..	..	..	12.50 m.
Bomb carrying capacity ..	..	..	400 kg.
Motor, Austro-Daimler ..	..	..	300 h.p.

In form the ailerons are trapezoidal, like that of the Italian Lohner machines. Length of ailerons, 3.47 m.; mean width, .90 m.

Dimensions of the empennage or tail group : Length of horizontal stabiliser or tail-plane, 4.74 m.; width, 1.27 m. Length of tail-flaps or elevators, 4.74 m.; width, .87 m. The vertical rudder differs from that of the old Lohner machines in that there is a small balancing area forward of the pivot.

The principal dimensions of the hull are : Maximum width,

1.50 m.; maximum length, 12.50 m.; maximum height, 1.20 m.; step .25 m.

The body has two seats side by side and one in front, upon which is mounted a machine gun arranged to be movable and fired in any direction. Besides the pilot, next to the observer, there is also a machine gun arranged on a movable tube inside the casing. The outside tube is the only additional piece the machine contains.

The turret is armoured. No bomb-dropping devices have been located. There are two vertical pieces of wood, with a circular profile notch fastened to the floats under the wings. It may be that these are used to drop large bombs, but no discovery has been made which would show how they are secured in them. Several hooks for small bombs were found.

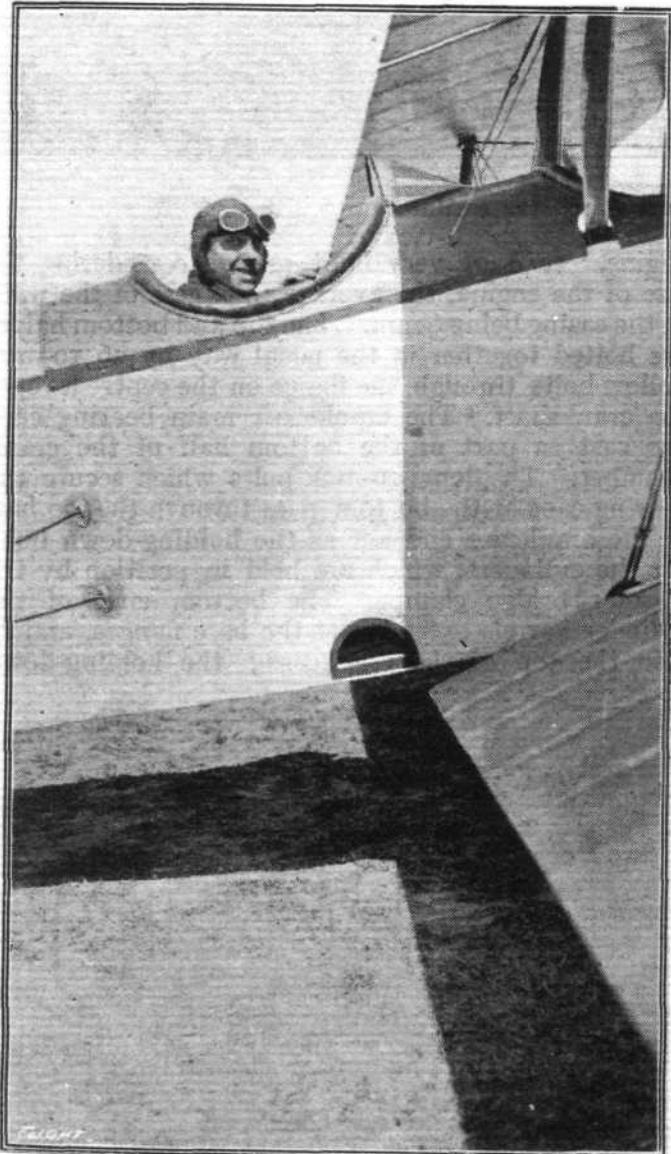
The lateral or wing-floats, instead of being hemispherical in shape, have a bow with good streamlines, which plough on the water surface like the prow of a ship. The accompanying drawing shows their general outlines. Each is 88 cm. wide and 181 cm. long.

The engine, an Austro-Daimler, has 12 cylinders arranged in a V. It is rated at 300 h.p.



AN AUSTRALIAN RECORD FLIGHT.

SOME very fine performances were put up in Australia in November last by Lieut. W. J. Stutt, who will be remembered by our readers as a Bristol pilot previous to the war, and is now at the State Aviation School. On his Curtiss biplane, he flew from the Richmond school near Sydney, N.S.W., to



Lieut. W. J. Stutt at the wheel of his Curtiss machine in which he made his record flight in Australia.

Point Cook near Melbourne, Victoria, covering the journey of 600 miles in 9 hours 32 minutes, his best non-stop being 263 miles in 3 hours 37 minutes. He improved on this considerably on the return journey, for which his total time was

7 hours 20 minutes. He had one stop of 1 hour 17 minutes at Cootamundra—and his best non-stop run was 342 miles in 4 hours 10 minutes, averaging 82 miles an hour. This is a record for Australia. Lieut. Stutt is the first aviator to fly between Melbourne and Sydney in one day. During the return journey he encountered very bad weather, and after passing Goulburn was driven out to sea by a rainstorm. A passenger was carried during the first part of the journey, but Lieut. Stutt flew alone for the concluding stage, as the engine was not running at its best. Point Cook was left at 5.53 a.m., Cootamundra reached at 10.3 a.m., and left at 11.20, the machine finally landing at Richmond at 2.30 p.m.



The Admiralty and Air Work.

ONE of the changes which follow from the re-organisation of the Board of Admiralty is the disappearance of the "Air Lord," who in the late Board was Commodore Godfrey Paine, now transferred to the Air Council. Under the new arrangements there will be a Director of the Air Division—to which post Wing Capt. F. R. Scarlett, D.S.O., has been appointed—who will be grouped under the Deputy Chief of the Naval Staff with the Directors of the Operations (Home) and Plans Divisions, their duties relating entirely to the planning and direction of operations in the main sphere of naval activity.

Aeronautical Society Honours General Henderson.

LIEUT.-GEN. SIR DAVID HENDERSON, who has now been appointed Vice-President of the New Air Council, and who rendered such distinguished services as Director-General of Military Aeronautics, has been elected an Honorary Fellow of the Aeronautical Society as a recognition of his distinguished services to aeronautics, and of his many years' work on behalf of the Society.

General Henderson, who has accepted the honour, has been a member for seven years.

A British Pilot in Holland.

News was received in Amsterdam on January 7th that the previous afternoon a two-seater aeroplane bearing the Allied colours and armed with two machine guns descended near Brielle (South Holland). The pilot was 2nd Lieut. Shames, a Canadian officer, of Berlin (Kitchener), Canada, who had lost his way in the clouds after a fight with German aviators. He was taken to The Hague.

The United States Aviators in French Army.

As the result of an agreement between France and the United States, all the American airmen attached to the French Army are to be transferred into the U.S. Army.

Hun Flying Champion Killed.

FROM information received by the *Lokalanzeiger* from Munich, it appears that the Bavarian Flight Lieut. Mac Mueller, who had 38 victories to his credit, has been killed as the result of an accident in the air due to an engine defect.

He is said to have risen from the ranks, and it is claimed that he stood next to Richthofen as regards the number of victims shot down. He was first mentioned in the German communiques on June 10th, which claimed that "Sergeant-Major Mueller, a few days ago, shot down his 14th opponent in aerial encounters." His promotion as lieutenant, "on account of his services," was reported on September 4th.

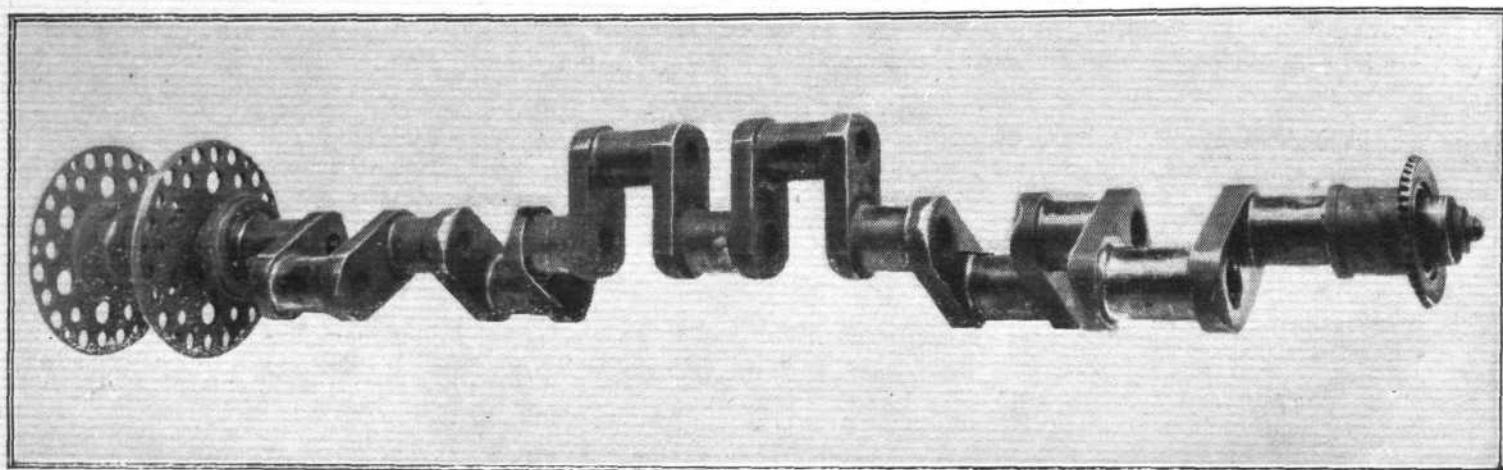
THE 260 H.P. MERCEDES AERO ENGINE.

(Continued from page 37.)

Crankshaft.—The six-throw crankshaft, which is of very massive design, weighs no less than 139.5 lb., including the propeller boss. The cranks are set at 120 degrees, and the diameter of both crankpins and journals is 64 mm. The length of the front journal bearing next to the propeller is 140 mm., and the other crankshaft bearings is 64 mm. The thickness and the width of the crank webs increase towards the front end of the crankshaft. The thickness of the front web is 29 mm., that of the second is 28 mm.,

sunk in the crankshaft parallel to the taper. The front flange is fitted on to the boss by six stepped serrations or grooves, each 29 mm. wide, and is clamped to the propeller by six 18-mm. bolts on a 230-mm. diameter circle. The propeller boss and the front flange are both locked on the shaft by the usual Mercedes locking device, shown in the drawings of the boss (Fig. 15).

Crankcase.—The very clean design of the crankcase casting is evident in the photographic views of the



The crankshaft of the 260 h.p. Mercedes engine.

whilst the remainder are all 27 mm. in thickness. The crankshaft is bored and the webs drilled with oil passages leading from the hollow journals to the crankpins for lubricating the big end bearings in the usual manner. The holes bored in the journals and crankpins are of decreasing diameters, according to their distance from the oil pump and main delivery, as follows :—

Internal diameter of Hollow Crankshaft Journals.

Prop. end.	1	2	3	4	5	6
	35 mm.	35 mm.	35 mm.	38 mm.	40 mm.	41 mm.

Oil pump.

Internal diameter of Hollow Crankpins.

Prop. end.	1	2	3	4	5	6
	32 mm.	33 mm.	35 mm.	38 mm.	41 mm.	43 mm.

Oil pump.

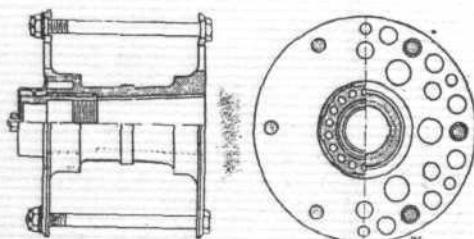


Fig. 15.—Arrangement of propeller boss.

The ends of the hollow journals and crankpins are plugged with sheet steel caps which are driven into the cranks, and then expanded into an annular groove cut inside the holes bored in the cranks. To take the propeller thrust, a single thrust ball race 110 mm. in diameter is provided on the front end of the front journal bearing, and mounted in a split cage which is held in the housing of the crankcase halves.

Propeller Boss.—The propeller boss, which is mounted on a taper of the crankshaft, is secured by a single key 120 mm. long and 13 mm. wide, which is

engine. It is of very light section considering the size of the engine, the average thickness of the walls of the casing being 6 mm. The top and bottom halves are bolted together in the usual way by 26 10-mm. hollow bolts through the flange on the centre level of the crankshaft. The crankshaft main bearing caps are cast as part of the bottom half of the crank chamber. The long 20-mm. bolts which secure the bearing caps at the bottom pass through the top half of the crankcase and act as the holding-down bolts for the cylinders, which are held in position by triangular bridge clamps. The bottom ends of the cylinder barrels extend past the base flanges, and fit into the top of the crankcase; the holding-down

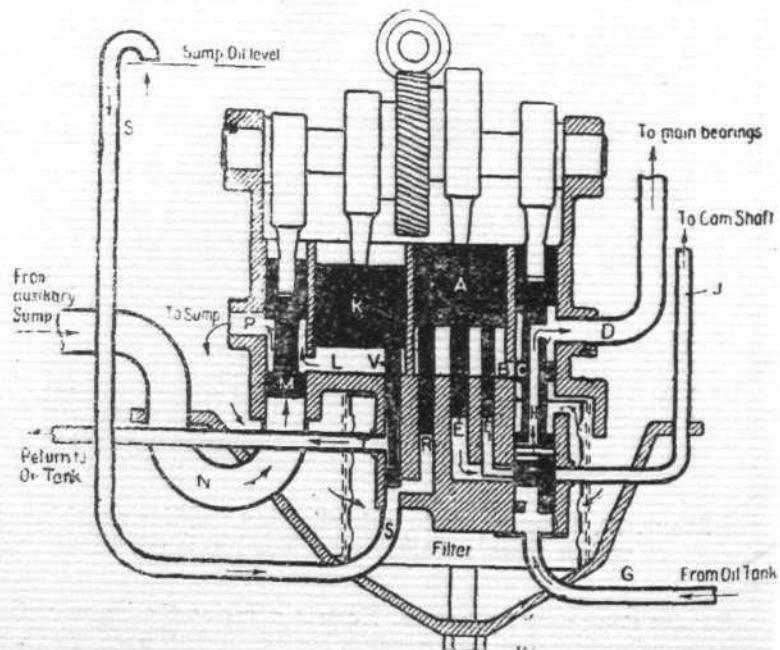


Fig. 16.—Diagrammatic section of oil pump.

bolts clamp each cylinder base flange at four points by the bridge pieces between each pair of cylinders.

Below the crank chamber, at the rear end is situated the main oil sump, which contains the oil pump. In the front end of the base chamber casting below the

carburettor. Air is led by two ventilating funnels on each side of the crankcase into two oval ports in the base chamber casting, and a number of fins are cast on the under side of the false bottom inside the base chamber for cooling purposes. The air intake to the carburettor is a large passage 4 ins. in diameter,

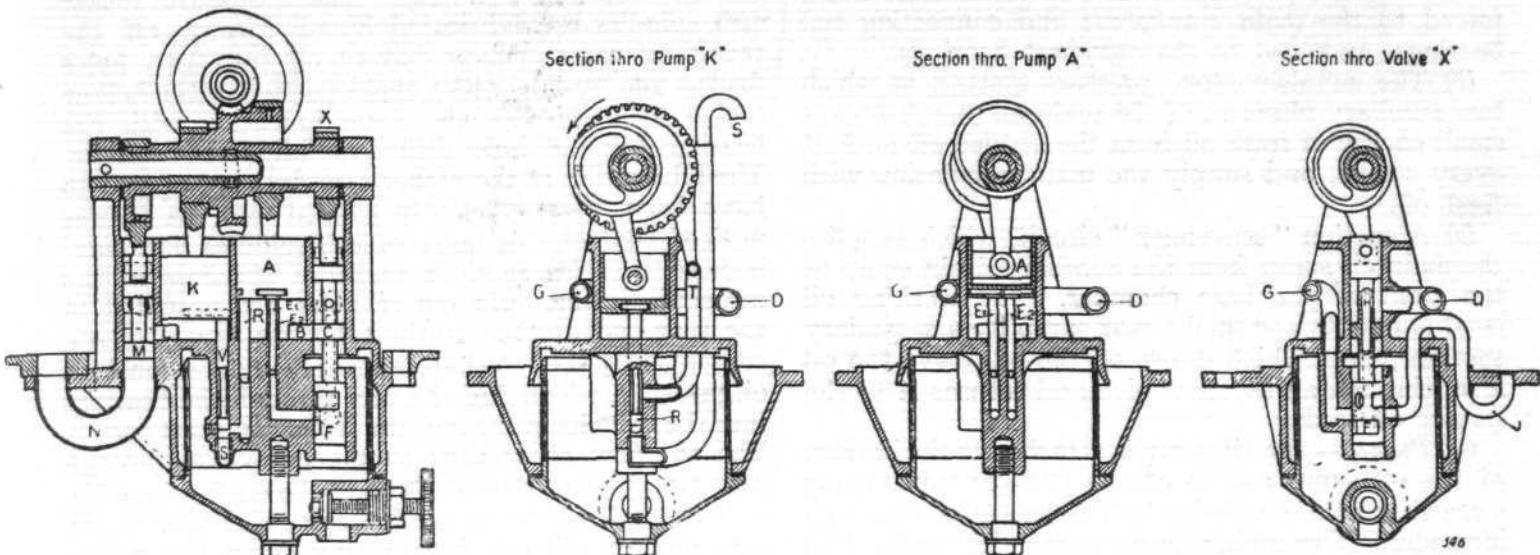


Fig. 17.—Sectional details of oil pump.

false bottom is an auxiliary service oil sump, into which the return oil from the circulation system drains through a wire gauze filter. The central chamber of the base chamber casting between the two sumps is used as an air chamber for the dual purpose of cooling the oil and warming the air supply to the

cast in the left-hand side of the crank chamber and base, as shown in the sectional arrangement drawings of the engine. Cooling fins are also cast on the under side of the sump, and four breathers are fitted into the top half of the crank chamber between the webs of the main-bearing housings.

Lubrication.

Although the general lubrication system of the 260 h.p. Mercedes engines is arranged on normal principles, it is necessary to deal with the various details of the somewhat complicated construction of the plunger type oil

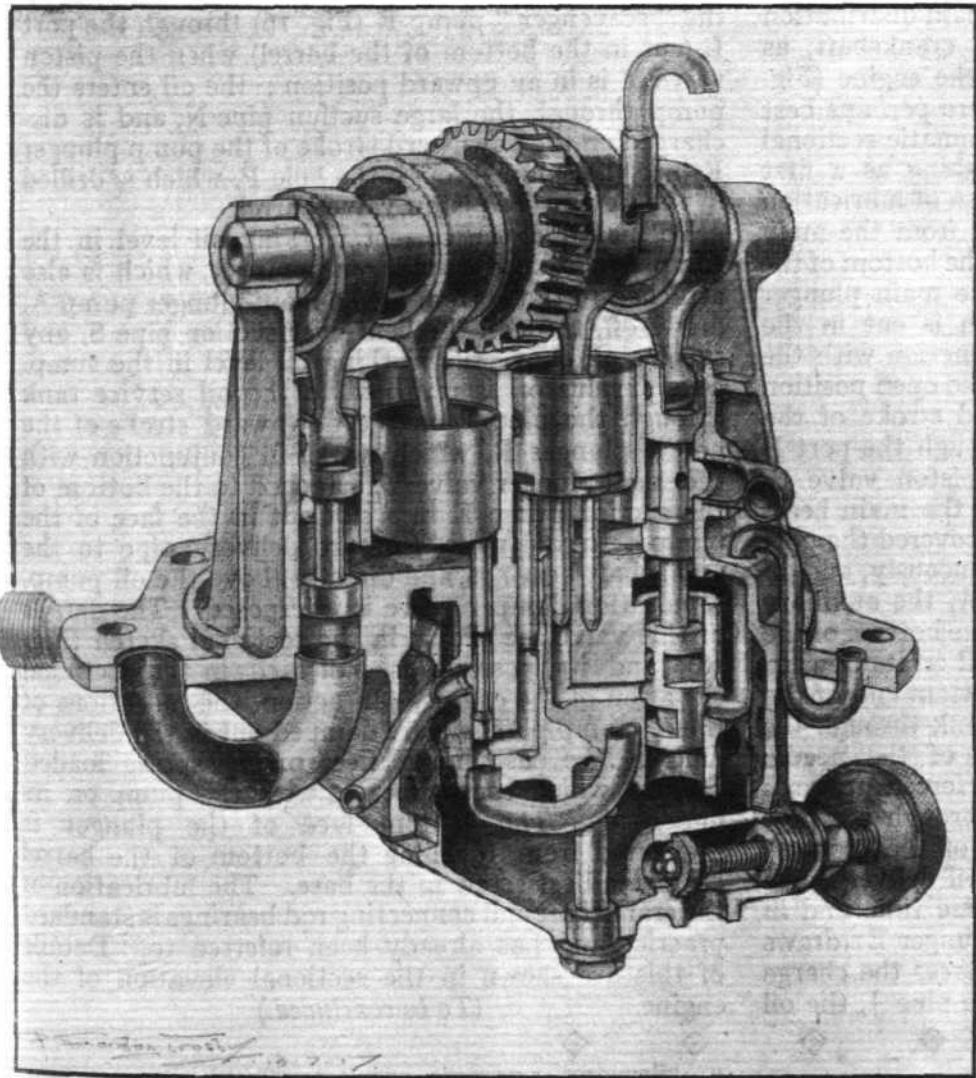


Fig. 18.—Sectional perspective view of oil pump.

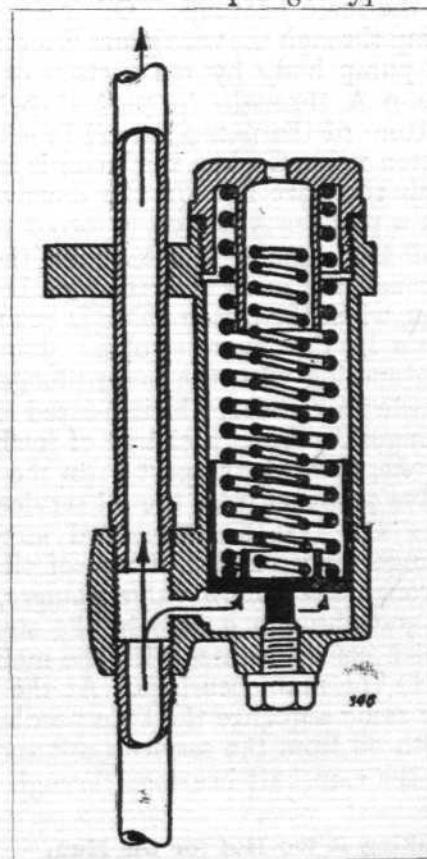


Fig. 19.—Oil pulsation damper valve.

pump, and to describe their different functions and the method of lubricating the engine as a whole.

The system of lubrication may be subdivided into three circuits :—

(a) The main pressure circuit, in which oil is drawn from the main oil sump at the rear of the engine and forced to the main crankshaft and connecting rod bearings, and also to the camshaft bearings.

(b) The supplementary pressure system, in which two auxiliary plungers of the main oil pump draw a small charge of fresh oil from the service oil tank at every stroke, and supply the main circulation with fresh oil.

(c) A suction "scavenger" circuit, which supplies the main oil sump from the auxiliary drain sump at the front of the base chamber. The working oil level is maintained in the rear sump by a secondary suction pump, which draws off the oil above the oil level through an overflow pipe and returns it to the service oil tank.

Oil Pump.—The oil pump is attached to the bottom of the oil sump and is of the plunger type, being somewhat similar in design to that used on the 160 h.p. Mercedes. Two main plunger pumps for suction and delivery are employed, and three auxiliary needle plunger pumps, suspended from one of the main pump plungers, work in conjunction with piston valves on plungers at the sides of the main pumps. Each pump and valve plunger is operated by an eccentric, and the eccentric spindle is driven transversely to the engine crankshaft by a worm gear from a lay shaft, which is driven by bevel gearing from the vertical driving shaft of the water pump ; this shaft is in turn driven from the main distribution gear pinion on the rear end of the crankshaft, as shown in the sectional elevation of the engine (Fig. 5). The functions of the oil pump are perhaps best explained by reference to the diagrammatic sectional elevation of the pump (Fig. 16), taking as a first consideration the main pressure system of lubrication to the main bearings. Oil is drawn from the main sump through the wire gauze filter in the bottom of the oil pump body by the suction of the main plunger pump A through the port B (which is cut in the bottom of the pump barrel) in conjunction with the piston valve C when the latter is in the open position with the port B. On the downward stroke of the main plunger A the oil is forced through the port B and the annular space above the piston valve C, through the main delivery pipe D to the main bearings, when the piston valve D has uncovered the port B on its downward stroke. Simultaneously, and in conjunction with the main plunger A, the auxiliary needle plunger E₁, which is fitted to the bottom of the plunger A, draws a charge of fresh oil on its upward stroke, through the port F (in the bottom end of the valve plunger) from the oil service tank through the pipe G. On the downward stroke of the needle plunger pump E the charge of oil is forced upwards through the hollow valve plunger, through the port H and through a hole in the stem of the plunger, which communicates with the main oil delivery pipe D to the main bearings. At the same time and in the same sequence the twin needle plunger E₁ draws fresh oil from the service tank and forces the charge to the camshaft bearings through the pipe J, the oil

entering the front end of the camshaft through the hollow spindle of the air pump which is attached to the front end of the camshaft casing. In its passage through the hollow camshaft the oil under pressure is fed through small holes and oil grooves cut in each of the camshaft bearings. The camshaft rocker arm spindles are lubricated by oil thrown off the revolving cams, which deliver oil into two holes drilled side by side in the upper portion of the hollow rocker arm spindles and communicating with the bearings by small holes drilled radially in the spindle. The lubrication of the rocker arm does not appear to have been very efficiently carried out, as it was noticed that one or more of the spindles had commenced to seize in their cast-iron brackets in the camshaft casing. No outlet holes are provided in the rear end of the camshaft for the egress of oil, consequently the camshaft is entirely under a constant oil pressure, which finds its way through the bearings into the troughs in the bottom of the camshaft casing. The overflow oil returns to the crankcase through a 12-mm. pipe at the front end of the engine from the bottom of the air pump crankcase, and also at the rear end of the camshaft casing down the hollow vertical shaft, oil channels being cut in the under side of each of the camshaft bearing bushes. The oil which has returned by gravity to the crankcase is led into the oil sump at the rear through two holes 30 mm. in diameter drilled in the false bottom of the base. At the forward end of the crank chamber the oil flows into the front auxiliary sump through a wire gauze filter, already mentioned.

From this front auxiliary sump the oil is drawn by the "scavenger" pump K (Fig. 16) through the port L (cut in the bottom of the barrel) when the piston valve M is in an upward position ; the oil enters the pump through the large suction pipe N, and is discharged on the downward stroke of the pump plunger K into the sump through the hole P, which is drilled in the side of the piston valve barrel.

To maintain the correct working oil level in the sump a third needle plunger pump, R, which is also attached to the bottom of the main plunger pump A, draws off, through the bent-over suction pipe S, any surplus oil above the working oil level in the sump. This surplus oil is returned to the oil service tank through the pipe T on the downward stroke of the needle plunger R, which works in conjunction with the small plunger valve V, attached to the bottom of the suction pump K in a slot cut in the face of the pump. In the main pressure delivery pipe to the crankshaft bearings, and directly above the oil pump, a pulsation damper valve is interposed. The details of this valve are shown in the sectional sketch (Fig. 18), and its position is indicated in the sectional elevation of the engine. In action, the pulsations of the oil pump plungers are damped out in the delivery pipe by the cushioning effect of the spring loaded plunger, which communicates with the pump on its under side. The bottom face of the plunger is prevented from touching the bottom of the barrel by a small set screw in the base. The lubrication of the crankshaft and connecting rod bearings is standard practice and has already been referred to. Details of this are shown in the sectional elevation of the engine.

(To be concluded.)



Making it too Hot for the Hun.

ACCORDING to the *Times* correspondent at Amsterdam, the Germans have withdrawn a well-known aerodrome

10 kilometres rearwards owing to British progress near Passchendaele, by which the camp became too much exposed to artillery fire.



AIRISMS FROM THE FOUR WINDS.

ENLIGHTENMENT by aeroplane, in the distribution over enemy occupied country of President Wilson's speech to Congress, translated into German, has already commenced, a wide area in Belgium having, on Thursday, last week, been favoured with these pamphlets by means of Allied aeroplanes. Liege was specially selected for this object.

A RAY of light may, by this means, break in upon the German public as to the real state of world feeling against their military caste's kultured methods. That the Junker tyrants dread this form of spreading the truth amongst their dupes can hardly be questioned, else would the military authorities have hardly issued that hurried notification through the Swiss authorities to the Allies, that the pilots of the distributing aeroplanes used for this propaganda work would, when caught, be treated as spies, and shot. The idea is worthy of the source whence it emanates, but they'll get the pamphlets all the same.

IN this connection, several ingenious methods of procedure have been suggested, so as to minimise the risk of giving the Hun the opportunity of securing his "hare" prior to treating him culinarily. One brain-wave is that it should be quite possible to do all that is necessary by means of balloons set adrift in a favouring breeze and with a clockwork arrangement to drop pamphlets at intervals. In this way, it is claimed, large tracts of Germany would be covered, and the work would be done less obtrusively than by aeroplane.

ANOTHER suggestion is that for the purpose of distributing the pamphlets in the German lines and for a mile in the rear, rockets should be used, which, before reaching the ground, burst and spread their contents over a wide area.

GOTHA visits over British soil are undoubtedly being very considerably interfered with by the continuous and successful raids by our air services upon the pirates' jumping-off grounds. That the Huns will use every endeavour to counter these effective tactics of ours may be taken for granted, and so with more settled weather, a resumption of the squadron attacks may be anticipated. At the same time, the further off they have to move their aerodromes, the greater their handicap in doing really effectual damage. Not only are the German coast-line dromes being set back, but further inland they are being compelled to shift to healthier quarters, owing to the persistent attentions bestowed upon them by the R.F.C. men.

ANOTHER method—advocated in FLIGHT a few years back as a necessity in the not very long future—of levelling-up their chances from attack, is being adopted by the Hun Command: the housing of their bombing machines underground. According to the *Echo Belge*, they have already constructed at one of their principal Belgian aerodromes several huge underground hangars of concrete, these being at a great depth, and having an enormous superficial area. The aviators start their engines underground and emerge from the shelters in full flight up a long inclined plane. In returning they alight on the inclined plane, down which the machines run easily to their shelters. The paper adds that similar aeroplane shelters are in course of construction at other aerodromes.

A SCATHING commentary upon Hunnish methods was made in Berlin last week by Professor Hans Delbrück, who advised that honesty should be tried by the German authorities by way of a change. The occasion was during an address at the first meeting of the members of the Polish Society, and Professor Delbrück adopted the standpoint that Germany might completely renounce territorial acquisitions in the East and West. He contended that honesty was desirable, not on pacifist grounds, but on those of a higher political sagacity, and said that a practical proof of the correctness of this conception was to be found in the brilliant success of British policy in South Africa.

A LOT of water will have to pass down the Rhine before the kultured Junkers see daylight in this direction.

WORDS of wisdom from a worker to workers, not forgetting strikers: Mr. G. N. Barnes, M.P., speaking at Dundee this last week-end, said that one of the strangest and most tragic meetings in the whole of history was that between the Russian idealists and the German diplomats. The idealists had nothing behind them but an army in process of decomposition, a people given over to anarchy and drunk with new-found liberty, and yet these idealists were pouring grave words into the ears of men in shining armour. It was a mistake to think that they only wanted peace who spoke of peace by negotiations. Some of them wanted a peace that would be permanent because based on firm foundations. He was there to urge the continuance of the war until such time as Germany gave up her ideas of world conquest and gave security for the future.

AT Glasgow, Mr. Barnes was even more emphatic in his views when dealing with wage-earners as and profiteers. He made the following very strong declaration on profiteering and engineers' wages, which may well be taken to heart by Coventry and other cushy malcontents. He said that scarcely had the war begun when profiteers also started. Ships were sold over and over, not at 100 per cent., but 1,000 per cent. profit. White beans, sold at £20 per ton, reached the table at £80. He would be equally fair on the other side. Scarcely had the war begun when he was asked to visit Glasgow and struggle with a body of men on strike for 2d. hourly. There had been many strikes since then. The 12½ per cent. had become almost an obsession with many men in shipyards, engineering shops, and other places. He placed those men alongside profiteers. Every time they struck for higher wages there were others whose position was worsened. It was not the poorest who were striking, but the relatively higher-paid men, those ranging from £4 to £5 weekly. Every time they struck the currency was more diluted, the price of goods rose sympathetically, and the masses of the poor, including families of



The Rowland Ding Memorial Tablet erected, at the entrance to Olympia, Leeds, by the staff and employees of the Blackburn Aeroplane and Motor Co., Ltd. (From the "Olympian," the house organ of the Blackburn Co.)

soldiers, people with fixed incomes, had their lives made harder.

YET, with the facts being brought directly home to them more and more, day by day, the worker does not appear to grasp this simplest of formulæ, the instilling of which once really established, is likely to spell the end of "imitation" Trades Unionism, and found the real article, to the benefit of all decent employees and employers alike.

AFTER all, our Volunteers are not to be available for help when air-raids are about, judging by a communication from Lord French to the Bethnal Green Council to the effect that he is unable to recommend that Volunteers in uniform should assist the civil authorities as raid shelter stewards.

SIR HARRY JOHNSTON is a keen sympathiser with Higher Education. Moreover, he has no qualms in regard to the language he uses, when expressing his views, when in conflict with happenings under the bureaucratic rulers of to-day. The recent "catch-who-catch-can" selection by the Government Department over which Sir Alfred Mond exercises sway, of the British Museum as a suitable housing for the Air Council and the Victoria and Albert Museum for other similar purposes, has, apparently, especially got upon Sir Harry's nerves, and the other day, in his presidential address, at the eighteenth annual meeting of the Public School Science Masters, he found opportunity to fairly let himself out.

"We drifted into this war," Sir Harry claimed, "through sheer lack of expert knowledge of foreign countries and foreign languages. We had muddled and misconducted our war operations on sea and land through lack of expert knowledge of science on the part of those commanding at home, and sometimes—happily, not always—of those commanding abroad. The one sure way to beat the Germans and keep them in their place was to become better educated than they were and apply our new education to developing the resources of our own land and of the four or five million square miles in the tropics dependent on the London Government for direction. Before the war, because of our contempt for a scientific education, we offered little or no inducement to our young men and women to serve the country and the Empire in the application of science to industry, commerce and the enlargement of the national intelligence. Therefore, we had had to recruit our science teachers frequently from Germany. But never again within the lifetime of the youngest man present should we send to Germany for instructors in any branch of learning. Consequently, it was more than ever vitally necessary that we should reorganise our education and produce as home-bred articles all the botanists, philologists, foresters, zoologists, entomologists, chemists, astronomers, translators of Oriental manuscripts, and musicians required for our home needs and

for the Empire. We needed equally to give a glimmer, a general idea of these branches of science to all the people of the realm."

ALL the above tabloid wisdom by way of a preface to the following "mild protest" regarding the Prussianisation of the nation's treasure houses. Thus, continued Sir Harry:

" In this hour of our bitterness and abasement, when our uneducated Government, which could neither carry the war to a conclusive victory nor make peace on equitable terms, was engaged in its madness or levity in hacking at the foundations of true knowledge ; when, with 50 other more suitable buildings at its disposal, it had seized on the three most adapted to the people's studies, giving with the glee of a Goth of 500 A.C. the Victoria and Albert Museum to the Board of Education for the incubation of its addled eggs, and sequestering two great branches of the British Museum, disarranging and perhaps hopelessly ruining collections beyond price which many a pioneer had risked his life for so that his people might become learned in the marvels of the world—when these outrages were perpetrated so that the Savoy Hotel might still be available for Ministerial and military luncheon, tea, and supper parties, so that new-fledged Ministers might place their foot soles on Persian carpets a thousand years old and drop their cigarette ash into Majolica faience, or gaze up from their littered bureaux at the busts of the Cæsars ; when we had reached such a disastrous period in our history it behoved all who really loved learning, whether under the guise of the 'classics,' under the ferule of the hard-grained Muses of the Square and Cube, or the more genial enticement of the biologist, or the spell of the chemist, to compose, their quarrel, to join hands, and to swear a solemn oath that they would yet save England from the barbarism with which she was threatened by Sir Alfred Mond and Lord Rothermere, and the Cabinet behind them. Victory over the German foe would be lessened in the relief and joy it should bring if it was associated with the memory of a British Louvain, laid in ruin by a British Administration."

AFTER this, one would have thought there was barely a necessity for suggesting, when replying to a vote of thanks for his address, that the conference would not close without some expression of opinion as to the unimaginable horror of the seizure of the British Museum.

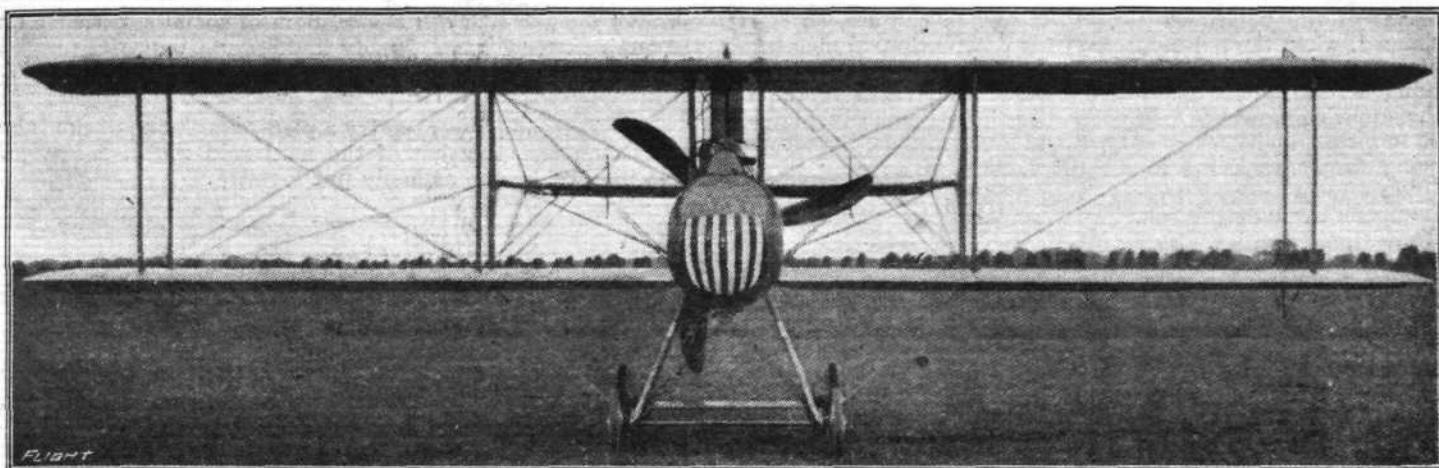
LORD WIMBORNE, Lord Lieutenant of Ireland, last Saturday, speaking at Belfast, again prophesied that before many years the postal service with England will be conducted by air, and following the aerial post, we might see something of aerial transport, when people in a hurry, or who dreaded the sea, might prefer to take an aerial trip. He thought Ireland should take a special interest in aerial development. Aeroplane cloth and the coverings for airships are manufactured in Belfast.

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"Early Loopers."—The annexed photograph which reaches us is a reminiscence of an event which was dealt with very fully in "FLIGHT" at the time. On March 25th, 1914, Reginald Carr (now Major Carr, R.F.C.) looped on the Grahame-White biplane "Lizzie," and his example was promptly followed by Louis Noel (now Lieutenant in the French Aviation Service), the late Frank Goodden (late Major, R.F.C.), L. A. Strange, while J. Laurence Hall looped on his own machine. The photograph shows, left to right, J. Laurence Hall, the late Frank Goodden, Major R. H. Carr, Lieut. Louis Noel, and L. A. Strange.

A horizontal row of nine small circles, evenly spaced, representing a sequence or a set of data points.





A front view of the American Continental pusher biplane, which is fitted with a 135 h.p. Hall-Scott motor, and has a speed of about 95 m.p.h.

he said, and Ireland some day will be the landing station for aeroplanes from America. He was glad to know that the Government had decided to establish a very large air factory and several aerodromes in Ireland.

SOME interesting impressions should result from the interviews at Aix-la-Chapelle, of the German Crown Prince, camouflaging as one with a chastened spirit, with the group of exchanged R.F.C. prisoners of war on their journey back to England.

ACCORDING to the *Londoner*, referring to the use by the French authorities of aeroplanes for conveying seriously wounded cases to the base hospitals, we have already followed our Allies' example, and that in a number of urgent cases our aeroplanes have conveyed desperately wounded men to the base for immediate treatment, and thus saved valuable lives. Needless to say, however, the practice has not become general, for the simple reason that there are not a sufficient number of big machines available for the purpose, although *Londoner* understands that their use for this work of mercy may be extended.

UPON the same authority the British Government is having dirigibles built for a similar purpose, the intention being to employ them in cross-Channel work, and thus cheat the U-boats of their most valued prey. Fighting machines will travel with them in order to repel any enemy attacks that may be made during the journey.

How comes it that, in spite of past complications, youthful aviators still appear to have opportunities of demonstrating their prowess, or the want of it, upon Service aeroplanes, for

the delectation of admiring "sisters and their cousins and their aunts," and, occasionally, wives and parents, to the undoing of themselves and the country's much-needed machines? What, in the local scribe's journalese, was the other day described as an "adventurous home-coming," in a Midland district, is a case in point. Here is the story as it is published, minus the names and places:—

"Lieutenant —, son of the Rev. —, rector of —, is in the R.F.C., and yesterday morning he left his station on a "flying" visit to his young wife and his parents in Manchester. He had a good passage to the city, notwithstanding the floating snow clouds, and after encircling Manchester, he chose what appeared to him a likely spot for alighting. All went well until he came to earth. The well-dug ground of some allotments, however, proved his undoing. The landing wheels stuck, and the biplane dipped, smashing the propeller and one of the wings, and crashed into a frail greenhouse belonging to an allotment holder. The pilot jumped clear when the machine rose on its nose, and was uninjured. His machine, however, remained stuck in the ground, and attracted the attention of thousands of people for the rest of the day."

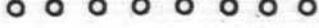
A BELATED Christmas and New Year's Greeting, which we heartily reciprocate, comes, per J. E. Pearson, R.S.M., from the W.O.'s, N.C.O.'s and Men of the — R.F.C. squadron in British East Africa. November 19th was the posting date at the Base Office, so, considering things, not over much time has been lost.

Now, with a certain amount of reason, there are objections being raised to the method of giving air-raid warnings by



A speedy American pusher biplane, built by the Continental Co., having a speed of about 95 m.p.h. It is fitted with a 135 h.p. Hall-Scott motor.

Courtesy "Aerial Age" (U.S.A.).



means of the police whistle. It is apt to confuse, so it is claimed, when the police are tracking down criminal members of the community. This is as it may be, but there is one thing certain, the "boy-beast" fiends who ramp round in the suburbs, blowing these police whistles strenuously, should be suppressed with a strong hand and much muscle, the former being firmly encircled round the handle of a hefty birch. Upon several occasions, we have witnessed quite a little stampede through this playing "specials" by these uncontrolled little urchins.

THE scholar in the attic. "He wasn't half angry," said a constable to me, smiling reminiscently as he cast his eye over what remained—mostly top story only—of an old-fashioned house which had suffered in a recent air raid. "You should have heard his language!"

"Curious thing," I said, "the top floor doesn't appear to be touched."

"Yes, that's where he was," said the constable. "Of course, we thought he was a casualty. We cleared away the rubbish, and somehow or other got up to his rooms with an ambulance and the doctor. The door was closed, so we started prising it open. That's when the fun started.

"The door was flung open, and there stood the old gentleman with a big book in his hands, his 'specs.' on, and in a proper temper. I just caught a glimpse of a cosy armchair drawn up to a blazing fire. 'What the — does this mean?' he says. 'Haven't I been disturbed enough this evening? Get out of it, all of you!' And without troubling to shut his door he went back and sat down with his book beside the fire, muttering most awful. It gave me the biggest shock of the raid."—"H. H.," in the *Daily Mail*.

Thus "Corisande" in the *Evening Standard*.

"Air Raid Etiquette.

"Now that the Boche has taken to calling on London just about dinner time, we really must get a clear idea of air-raid etiquette in regard to the refugees who may drift into our homes as the barrage begins. If we are to sit down to an exiguous wartime meal, must we offer to share and share alike, and if our best old port or priceless brandy is just going the rounds for the favoured guests, is the stranger within our gates to get his quota?

"It is a nice point as to how far hospitality, tempered, of course, with respect for Sir Arthur Yapp's injunctions, should go in regard to those who seek shelter with us, and I hope some-

one will soon speak with the wisdom of social experience on the subject, for I have already had several inquiries on this point."

If "Corisande" were to try a plebiscite at one of the tube stations on the occasion of the next raid night, she might solve the problem so artlessly put forward.

TEN YEARS AGO.

Excerpts from the "Auto." ("FLIGHT'S" precursor and sister Journal) of December, 1907. "FLIGHT" was founded in 1908.

THE FARMAN AEROPLANE, No. 2.

During the intensely cold weather which has been prevalent lately, and has spare France no less than our own island, practical experiments on the parade ground at Issy have been at a standstill, and various *habitués* having for the most part been spending their enforced leisure by touching up their machines. Mr. Henry Farman has, as a matter of fact, been actually engaged in the construction of a new machine which differs materially from that with which he has been so successful hitherto. It consists of five pairs of outstretched wings, three pairs placed well in front, the other two being at the rear, but all mounted upon the central framework, so that they are normally at different levels, or *en escalier*, as the French express it. This central framework is 14 metres long, while the stretch of the front wings is 7 metres, those at the rear measuring somewhat less. A total surface of 45 square metres is provided, and propulsion is to be effected by a 50 h.p. engine operating a tractor-screw of 2.5 metres in diameter. Altitude is to be controlled by deflecting the front plane, which is hinged, and steering takes place by means of a vertical rudder situated at the rear. The whole apparatus is mounted upon a three-wheeled chassis.

U.S.A. ARMY AIRSHIPS.

According to our contemporary, the *Scientific American*, Brigadier-General James Allen has issued specifications for the construction of airships which the U.S.A. Army are prepared to purchase. The gas-vessel is to be not more than 120 ft. in length, and is to be made of aluminium coated silk, and to contain two ballonettes in addition to the necessary valves and ripping gear. The airship must be capable of carrying two passengers weighing 175 lbs. each, and in addition 100 lbs. of ballast. A speed of 20 miles an hour in still air will be necessary.



Grade and Pay of R.N.A.S. Observers.

THE *London Gazette* of January 8th contained an Order in Council making provision for the pay and emoluments of the Observer Branch of the Royal Naval Air Service. Observer officers are to be graded in the following ranks: Observer Branch—Probationary Observer Officer, Observer Sub-Lieutenant, Observer Lieutenant, Flight Observer, Squadron Observer, Wing Observer, and Observer Captain. Flight Officers (corresponding rank)—Probationary Flight Officer, Flight Sub-Lieutenant, Flight Lieutenant, Flight Commander, Squadron Commander, Wing Commander, and Wing Captain.

The pay and allowances of Observer Officers to be as follows: Probationary Observer Officers, 7s. 6d. a day, and in addition, 3s. per day for each day on which they are required to make ascents. Observer Sub-Lieutenants and officers of higher rank, the pay of their corresponding rank in the Royal Navy, and in addition—Officers qualified in wireless telegraphy 5s. a day flying pay, together with 3s. a day skill pay, both payable continuously; officers not qualified in wireless telegraphy, 5s. a day flying pay, payable continuously.

Flight Observers and Squadron Observers are to be paid at the same rates as if they had served for four or eight years respectively as Lieutenants, Royal Navy, and to rank with Flight Commanders and Squadron Commanders respectively, but not to rank with Lieutenant-Commanders, Royal Navy, until they attain eight years' seniority in the relative rank of Lieutenant. Commissioned service as Observer prior to April 2nd, 1917, is to count for increases of pay in the scale of the rank.

Warrant Officers under training for service as Observers are to receive the pay of their rank, and in addition, 2s. a day for each day on which they are required to make ascents. On qualification as Observers they are to be given either acting or confirmed rank as Warrant Officers, second grade, with the pay of the rank and the following allowances: Warrant

Officers, qualified in wireless telegraphy, 3s. a day flying pay, together with 1s. a day skill pay, both payable continuously; Warrant Officers not qualified in wireless telegraphy, 3s. a day flying pay, payable continuously.

Flying pay to qualified Observers is to be continued at Admiralty discretion during periods of leave, sickness, internment, or captivity.

Pay of R.N.A.S. Officers.

IN the announcement of increased pay for Navy and Army officers published on January 14th, there are the following references to R.N.A.S. officers:—

As regards graded commissioned officers of the R.N.A.S., it has been decided, in view of their relatively high rates of pay, to grant a children's allowance of £1 per child per month, with a maximum of £4 a month, to officers of and below the rank of Flight-Lieutenant, but no such allowance to officers above that rank. In the exceptional cases of graded officers, who are borne for "ground" duties, and consequently ineligible for flying pay, it has been decided that officers of and below the rank of Flight-Lieutenant will receive a children's allowance on the same scale of Lieutenants, R.N., and officers of the rank of Flight-Commander and Squadron-Commander will receive an allowance on the same scale as Lieutenant-Commanders, R.N. Temporary Surgeons and Surgeons, R.N.V.R., will receive a children's allowance at half rates, as in the case of officers similarly employed in the Army.

As in the case of the Army, the age limits will be those already in existence for allowances to children of deceased officers, viz., 18 for boys and 21 (or marriage, if earlier) for girls, with extension in case of invalids.

Flight-Commanders (R.N.A.S.).—In order to obviate loss on promotion owing to the withdrawal of children's allowances, it has been decided to grant pay of 19s. on promotion, instead of 17s., as at present.

INTERNATIONAL AIRCRAFT STANDARDS.

(Continued from page 25.)

3514.—Specification for 7×7 Flexible Steel-Wire Cable—contd. REELS FOR CABLE.

ENGLISH UNITS.											
Diameter of strand or cable	Diameter of head.	Traverse or distance between heads.	Diameter of bundle.	Diameter of arbor hole.	Diameter of head.	Traverse or distance between heads.	Diameter of bundle.	Diameter of arbor hole.	Number.	Carbon.	Manganese.
In.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	1065	0.60-0.70	0.50-0.70
1/32	12	4	8	1 1/2	12	4	8	1 1/2	1070	0.65-0.75	0.50-0.70
1/16	12	4	8	1 1/2	12	4	8	1 1/2	1080	0.75-0.90	0.25-0.50
5/64	12	4	8	1 1/2	16	4	10	1 1/2			
3/32	12	4	8	1 1/2	16	4	10	1 1/2			
7/64	16	4	10	1 1/2	16	7	12	1 1/2			
1/8	16	4	10	1 1/2	16	7	12	1 1/2			
9/64	16	7	12	1 1/2	16	10	8	1 1/2			
5/32	16	7	12	1 1/2	16	10	8	1 1/2			
3/16	18	7	12	2 1/2	18	10	8	2 1/2			
7/32	18	7	12	2 1/2	18	10	8	2 1/2			
1/4	18	10	10	2 1/2	24	10	10	2 1/2			
5/16	18	10	10	2 1/2	24	10	10	2 1/2			
11/32	18	10	8	2 1/2	32	16	16	2 1/2			
3/8	18	10	8	2 1/2	32	16	16	2 1/2			

METRIC UNITS.											
305 metres.											
Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.			
0.794	305	102	203	28.58	305	102	203	28.58			
1.588	305	102	203	28.58	305	102	203	28.58			
1.984	305	102	203	28.58	406	102	254	28.58			
2.381	305	102	203	28.58	406	102	254	28.58			
2.778	406	102	254	28.58	406	178	305	28.58			
3.175	406	102	254	28.58	406	178	305	28.58			
3.572	406	178	305	28.58	406	254	203	28.58			
3.969	406	178	305	28.58	406	254	203	28.58			
4.763	457	178	305	53.98	457	254	203	53.98			
5.556	457	178	305	53.98	457	254	203	53.98			
6.350	457	254	254	53.98	610	254	254	53.98			
7.938	457	254	254	53.98	610	254	254	53.98			
8.731	457	254	203	53.98	813	406	406	53.98			
9.525	457	254	203	53.98	813	406	406	35.98			

ENGLISH UNITS.											
305 metres.											
In.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.			
1/32	12	4	8	1 1/2	16	4	10	1 1/2			
1/16	16	4	10	1 1/2	16	7	12	1 1/2			
5/64	16	7	12	1 1/2	16	10	8	1 1/2			
3/32	16	7	12	1 1/2	16	10	8	1 1/2			
7/64	16	10	8	1 1/2	18	10	8	1 1/2			
1/8	16	10	8	1 1/2	24	10	10	1 1/2			
9/64	24	10	10	1 1/2	24	16	10	2 1/2			
5/32	24	10	10	1 1/2	24	16	10	2 1/2			
3/16	24	10	10	2 1/2	24	16	10	2 1/2			
7/32	24	10	10	2 1/2	32	20	16	3 1/2			
1/4	32	18	16	2 1/2	36	22	18	3 1/2			
5/16	32	18	16	2 1/2	36	22	18	3 1/2			
11/32	32	20	16	3 1/2	50	16	26	3 1/2			
3/8	32	20	16	3 1/2	50	16	26	3 1/2			

METRIC UNITS.											
1,524 metres.											
Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.			
0.794	305	102	203	28.58	406	102	254	28.58			
1.588	406	102	254	28.58	406	178	305	28.58			
1.984	406	178	305	28.58	406	254	203	28.58			
2.381	406	178	305	28.58	406	254	203	28.58			
2.778	406	254	203	28.58	457	254	203	28.58			
3.175	406	254	203	28.58	610	254	254	28.58			
3.572	610	254	254	28.58	610	406	254	53.98			
3.969	610	254	254	28.58	610	406	254	53.98			
4.763	610	254	254	53.98	610	406	254	53.98			
5.556	610	254	254	53.98	813	508	406	79.38			
6.350	813	457	406	53.98	914	560	457	79.38			
7.938	813	457	406	53.98	914	560	457	79.38			
8.731	813	508	406	79.38	1,270	406	660	79.38			
9.525	813	508	406	79.38	1,270	406	660	79.38			

In making racks for the above reels allow a 4-in. or 102-mm. greater width than the traverse specified above.

CHEMICAL COMPOSITION OF STANDARD CARBON STEELS.

Number.	Carbon.	Manganese.	Phosphorus, maximum.	Sulphur, maximum.
1065	0.60-0.70	0.50-0.70	0.040	0.045
1070	0.65-0.75	0.50-0.70	0.040	0.045
1080	0.75-0.90	0.25-0.50	0.040	0.045

TABLE OF WEIGHTS, SIZES, AND STRENGTHS OF CABLE.					
English Units.			Metric Units.		
Diameter, in.	Diameter, ins.	Diameter, mm.	Diameter, in.	Diameter, ins.	Diameter, mm.
1/32	12	3.175	1/32	12	3.175
1/16	16	5.156	1/16	16	5.156
5/64	16	7.938	5/64	16	7.938
3/32	16	9.525	3/32	16	9.525
7/64	16	11.32	7/64	16	11.32
1/8	16	12.99	1/8	16	12.99
9/64	16	14.66	9/64	16	14.66
5/32	16	16.33	5/32	16	16.33
3/16	18	18.00	3/16	18	18.00
7/32	18	19.67	7/32	18	19.67
1/4	18	21.34	1/4	18	21.34
5/16	18	23.00	5/16	18	23.00
11/32	18	24.67	11/32	18	24.67
3/8	18	26.34	3/8	18	26.34

3N12.—Specifications for Sheet Aluminium.

GENERAL.—1. The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. (a) Two grades are recognised :

Per cent.

Standard No. 1, aluminium not less than 99.00

Standard No. 2, aluminium not less than 98.00

Analysis.—(b) Samples for analysis shall be obtained from a random sheet, representing each 500 lbs. (226.8 kg.) of aluminum, or any lot weighing less than 500 lbs. (226.8 kg.), as agreed upon between the seller and the purchaser.

MANUFACTURE.—3. No scrap shall be used except such as shall accumulate at the manufacturer's plant from material of the same composition and of their manufacture.

WORKMANSHIP AND FINISH.—4. All sheets shall be sound, flat, free from buckles, seams, discolouration, or other surface defects.

PHYSICAL PROPERTIES AND TESTS.—Tensile test.—5. (a) :

Minimum elongation in 2 inches

Grade.	Minimum tensile strength.
Soft-annealed ..	12,000 pounds per square inch (8.44 kg./mm. ²) 30 per cent.
Half-hard ..	18,000 pounds per square



Casualties.

Major WILLIAM CLAUD KENNEDY BIRCH, M.C., Yorkshire Regiment, was the only son of Colonel and Mrs. W. J. A. Birch, of Compton Lodge, Walton-on-Thames. He was educated at Berkhamsted School and went into the Army through Sandhurst, being gazetted to the Yorkshire Regiment, and was seconded to the R.F.C. in 1914. He went to France with the 3rd Squadron R.F.C., in August, 1914. He was reported missing in January, 1915, having been forced to land in enemy territory, but finally escaped and made his way back to England. He was awarded the M.C. in 1916. He rejoined his regiment last year and was promoted temporary major last November. He was in command of his regiment when he was killed on January 5th, aged 26.

Lieutenant WILLIAM BOOTH, Rifle Brigade, attached R.F.C., who died on December 28th from wounds received in air fighting, was the younger son of Mr. W. H. Booth (borough treasurer of St. Pancras and Mrs. Booth, of 81, Dartmouth Park Road, Highgate, formerly of Heywood, Lancs.). He was educated at Owen's School, Islington, and Worksop College, Notts., and joined the staff of the London & South Western Bank in 1913. He enlisted in the Queen's Westminsters in May, 1915, received a commission in the Rifle Brigade in June, 1916, proceeded to France six months later, and took part in active operations in the Arras sector. In August, 1917 he became attached to the R.F.C., as an observer, joining a squadron in France in September last.

Lieutenant LESLIE L. MEDLEN, R.F.C., who was killed on December 22nd, was the second son of Mr. and Mrs. C. H. Medlen, Kent House, Eglinton Hill, Plumstead, and was born and educated in Woolwich. He was a pupil at Eglinton Road Council School, and at Bloomfield Road Central School, from which he passed second in the trade lads' examination at the Royal Arsenal. After passing through the engineering shops of the Royal Gun Factories, he entered the metallurgical department and later became an assistant metallurgist. He joined the R.F.C. in June, 1917, and went to the front in October. Lieutenant Medlen's two brothers, Lieutenant C. K. Medlen, R.F.C., and W. E. Medlen, R.G.A., are both serving abroad.

Captain ROBERT REEDER, Manchester Regiment, attached R.F.C., who was killed in action on January 6th, aged 25, was the eldest son of Lieut. and Mrs. R. J. Reeder, 19A, Emmanuel Road, Balham, S.W., and husband of Mrs. M. Reeder, 13, Deburgh Street, Dover.

Second Lieutenant JOHN HAROLD STACEY, R.F.C., who was killed in action on December 4th, 1917, was the second son of Mr. and Mrs. E. L. Stacey, Clovelly, Merstham. He served at Suvla Bay, 1915, and was severely wounded on the Somme in 1916. His age was 22.

Lieutenant GEOFFREY WALTER CALVERLEY, D.S.O., Royal Irish Rifles and R.F.C., (died on January 7th from the results of an aeroplane accident) was twenty-two years of age and son of the late Walter Calverley. He entered the Royal Irish Rifles in October, 1914, and was promoted in March, 1915. Transferring to the R.F.C., he received his "wings" in June last year. Lieutenant Calverley had been made a Companion of the Distinguished Service Order.

LIEUTENANT JOHN VESEY KNOX, R.F.C. and London Regiment, was the eldest son of Mr. Vesey Knox, K.C., of the Parliamentary Bar and Shimnah, Newcastle, County Down, and a nephew of Brigadier-General A. W. F. Knox, C.B., and of Brigadier-General H. H. S. Knox, D.S.O. He was educated at Wixenford, Wokingham, and Rugby (Steel's). After a short period of service in the Northamptonshire Regiment, which he entered from the Royal Military College, he became a clerk in the Principal Probate Registry. He joined a battalion of the London Regiment on August 4th, 1914, and served in France from February, 1915, to July, 1916, when he was attached to the Flying Corps. He broke his jaw in an accident while training in the autumn of 1916.

but had recovered and recently qualified as a pilot. He was accidentally killed in this country on Friday, January 4th.

Second Lieutenant A. J. MOORE, R.F.C., who has been accidentally killed in a flying accident, was a son of Mr. W. J. Moore, 78, Indian Grove, Toronto, and grand nephew of Mr. Geo. Elliott, M.I.M.E., 255, Antrim Road, Belfast.

Lieutenant JOHN REGINALD NICKSON, R.F.C., who was accidentally killed while flying on January 2nd, was the second son of the late J. J. and Mrs. Nickson, of Vancouver, Canada. He enlisted as a private in August, 1914, and after serving for two years abroad with the Canadian Mounted Rifles, he was granted his commission in the R.F.C., and had recently qualified as a pilot. Lieutenant Nickson had lived in British Columbia nearly all his life and was well known throughout the whole province. He was 26 years of age.

Married.

On January 5th, 1918, at St. John's Bromley, Q.M. J. GEOFFREY COMPTON, R.N.A.S., elder son of Major and Mrs. John Compton, of 9, Millfield, Folkestone, was married to UNA VIOLET, only daughter of Mr. and Mrs. ALFRED WRIGHT, Dunsford, Bromley, Kent.

On January 5th at St. John's Great Sutton, Lieut. PERCY DOUGLAS, R.F.C., eldest son of the Rev. Percy and Mrs. Douglas, of Great Sutton, was married to EDITH, youngest daughter of Mr. and Mrs. W. H. HORBURY, of Greenfields, Little Sutton, Cheshire.

The marriage took place on January 7th, at Christ Church, Clifton, of Flight Lieut. GERALD M. PART, R.N.A.S., youngest son of the late O.E. Part, of Lakeside, Ulverston, Lancs., and Mrs. Part, and ANITA, youngest daughter of R. POYER L. PENN and Mrs. Penn, of Camrose, Pembrokeshire.

On January 5th, at all Saints' Church, Reading, Lieut. WALTER HARRIS PULLEN, R.F.C., elder son of Mr. George Pullen, of Belmont, Reading, was married to CONSTANCE IVY, youngest daughter of Major General HERBERT C. BORRET, C.B., and Mrs. Herbert Borrett, of Lancaster Lodge, Reading.

On January 10th, at St. Matthew's, Bayswater, Captain F. E. B. WHITFIELD, Welsh Regiment and R.F.C., son of Rev. Whitfield, Vicar of Carleon, was married to NORA BEATRICE GROSS, daughter of Philip C. Gross, 26, Leinster Square, W.

To be Married.

An engagement is announced between Captain JOHN MARSH BURD, M.C., R.F.A., attached to R.F.C., only son of Dr. and Mrs. Burd, of Okehampton, Devon, and Miss NORAH MARY LANGRAN, third daughter of Dr. and Mrs. Langran, of The Lawn, Axminster.

An engagement is announced between Flight-Lieutenant NOEL GRABOWSKY, R.N., eldest son of Carl Grabowsky and Mrs. Grabowsky, and EVELYN SUSANNA AHERSTONE HALES, elder daughter of Lieutenant-Colonel H. M. A. Hales, Gloucestershire Regiment, late Bedfordshire Regiment, and Mrs. Hales.

A marriage has been arranged, and will shortly take place, between Wing-Commander F. K. McCLEAN, R.N.A.S., and AILEEN, daughter of Mr. and Mrs. W. H. WADE, of Lapworth, Warwickshire.

Item.

Wing-Captain F. R. SCARLETT who has been appointed Director of the Air Division of the Admiralty has been associated with the R.F.C. from early days, and for some time held the post of Inspecting-Captain of Air Training. As a Commander he studied at the Military Staff College, in 1913 he qualified for his pilot's certificate, and in May of that year was given the command of the "Hermes," a ship detailed for special duties in connection with the Air Service. Towards the end of 1913 he was appointed Inspecting Captain of Aircraft. He was promoted to Captain, R.N., on December 31st, 1914. He is 40 years of age.

The British Air Services

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

Admiralty, January 8th.

M. G. Cruise entered as Prob. Flight Officer (temp.), seniority Nov. 27th, 1917.

Admiralty, January 9th.

The undermentioned Prob. Flight Officers have been promoted to rank of Flight Sub-Lieuts. (temp.), with original seniority:—N. H. N. Fletcher, G. E. Tugwell, A. L. Godfrey, H. Brown, R. A. Hodgson, G. M. Cartmell, J. S. Ingleby, R. S. Orr, C. Roberts, L. E. Oakeshott, G. A. Bird, J. Hollick, W. V. Dumfee, D. H. Morris, E. J. Goy, F. C. Fowkes, P. H. Maskell, B. Barber, E. L. Dougall and H. F. Mears.

Prob. Observer Officers (Temp.).—J. Pilkington, R. W. Peat, J. W. Adams, and J. M. Todd, all promoted to rank of Observer Sub-Lieuts. (temp.), seniority Dec. 21st, 1917.

Sub-Lieutenant (Temp.).—R. Davidson promoted to Lieut. (temp.), seniority Jan. 4th.

Sub-Lieutenant, R.N.V.R. (Temp.).—A. H. Mackenzie, promoted to Lieut., R.N.V.R. (temp.), seniority Dec. 4th, 1917.

C. F. C. Sandwith and J. S. Wilkins entered as Prob. Flight Officers (temp.), seniority respectively Jan. 14th and 21st.

Temp. commissions as Lieut. (R.N.V.R.) have been granted to the following, seniority as stated:—G. Herbert and G. H. W. Dawson, Dec. 31st, 1917; and E. Gibbons, Jan. 14th.

Admiralty, January 10th.

The following have been entered as Prob. Flight Officers (temp.), seniority Jan. 1st:—B. R. V. Fox, E. G. Hunnibell, and H. W. Diss.

Chief Petty Officer.—H. Earll, promoted to rank of Warrant Officer, 2nd Grade, seniority Oct. 1st.

G. H. Paulin, granted temp. commission as Lieut. (R.N.V.R.), seniority Jan. 9th.

Admiralty, January 12th.

The following Prob. Flight Officers (temp.) have been promoted to Flight Sub-Lieuts. (temp.) with original seniority:—H. T. Roper, W. D. Baird, S. E. Wise, E. G. Wilkinson, F. G. D. Callow, G. M. Roberts, F. C. Sumner, B. E. Barwell, R. E. Bright, M. H. W. Tremell, H. B. Archibald, E. B. Jones, E. M. Ackery, E. M. Chamberlain, R. F. Gill, G. Smith, G. P. Walsh, F. Scott-Hall, E. R. L. Sprout, C. H. J. Holden, E. E. Morgan, G. L. Barnett, G. Verden, B. H. Parham, H. R. H. Ward, F. S. Wates (Obs. Sub-Lieut., temp.), C. F. R. Woolnough, A. D. Campbell, L. Martin, D. H. Bridger, B. C. Dupont, D. H. Lees, G. A. Wright, S. E. Whiteley, I. E. McIntyre, L. F. A. Green, J. A. Gray, J. L. Allison.

A. C. Davy and W. R. S. Henderson entered as Prob. Flight Officers (temp.), seniority respectively Nov. 24th and 27th, 1917.

Flight Sub-Lieutenants (Temporary).—B. C. Woodward, granted temp. commission as Lieut. (R.N.V.R.), seniority Jan. 11th.

Warrant Officer, 11 (Temporary).—J. E. Wain, granted temp. commission as Lieut. (R.N.V.R.), seniority Jan. 10th.

Royal Flying Corps (Military Wing).

London Gazette, January 7th.

The following appointments are made:—

Flight Commander.—Temp. Lieut. K. R. Kirkman, Gen. List, from a Flying Off., and to be Temp. Capt. whilst so employed; Dec. 18th, 1917.

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—G. A. Rainier; Dec. 1st, 1917. P. M. Hodder; Dec. 3rd, 1917. W. M. Strathearn; Dec. 4th, 1917. C. E. Morgan, E. R. MacDonald; Dec. 6th, 1917. A. L. Garrett, W. S. Maxwell, E. R. Haines, W. A. Hemming; Dec. 8th, 1917. W. H. Collander-Brown; Dec. 9th, 1917. J. G. Farquhar; Dec. 10th, 1917. C. McEvoy, T. T. B. Hellet, N. J. Robinson, H. H. Beddoe, E. V. Giles, O. C. Cassels; Dec. 11th, 1917. N. A. Holmes, H. T. W. Manwaring, C. L. Morley, R. Fitton, D. G. Brown, S. W. Ellison, H. J. Spreadbury, H. T. Harrison, Dec. 12th, 1917. E. G. Taylor, P. M. O'Connell, A. W. Rowdon, G. F. Steel, J. R. Greasley; Dec. 13th, 1917. The date of the appointment of Temp. 2nd Lieut. E. P. Critchley, Gen. List, is Nov. 21st, 1917, and not as in the *Gazette* of Dec. 4th, 1917.

Assistant Instructors in Gunnery.—(Graded as Equipment Officers, 3rd Class):—Temp. Lieut. A. C. C. Rawlins, Gen. List, from a Flying Officer (Obs.); Temp. Lieut. L. J. C. Lord, M.G. Corps, and to be transfd. to R.F.C., Gen. List; and Lieut. (Actg. Lieut.) H. S. Royffe, Middx. R. (T.F.), from a Flying Officer (Obs.); Lieut. O. G. Powell, Hamps. R., S.R., and to be sec'd.; 2nd Lieut. C. V. Jameson, Sea. Highrs. (T.F.), from M.G. Corps; 2nd Lieut. J. E. H. Swain, S.R., from a Flying Officer; Temp. 2nd Lieut. (on prob.) A. A. Westcott, Gen. List, and to be confirmed in his rank; Temp. Lieut. P. Jeffrey, M.G. Corps, and to be transfd. to R.F.C., Gen. List; 2nd Lieut. T. F. Northcote, K.E. Horse, S.R., from a Flying Officer (Obs.); and Lieut. H. Shackell, Middx. R. (T.F.), from M.G. Corps; 2nd Lieut. S. B. Henson, E. Kent R. (T.F.); Temp. 2nd Lieut. H. St. C. Roy, M.C. R. Innis Fus., and to be transfd. to R.F.C., Gen. List; Temp. and Lieut. H. P. Fulford, R.E., from a Flying Officer; 2nd Lieut. A. G. Berry, R. Sussex R. (T.F.), and to be sec'd.; Dec. 14th, 1917.

Depot Commander.—Qr.-Mr. and Hon. Lieut. (Temp. Maj.) A. H. Measures, from a Park Comdr., and to be Temp. Lieut.-Col. whilst so employed; Oct. 17th, 1917.

Park Commander.—Lieut. (Temp. Capt.) N. M. Halcombe, R.E. (T.F.), from an Equipment Officer, 1st Class, and to be Temp. Maj. whilst so employed; Nov. 24th, 1917.

Equipment Officers, 1st Class.—2nd Lieut. (Temp. Lieut.) R. Clelland, S.R., from the 2nd Class, and to be Temp. Capt. whilst so employed; Dec. 1st, 1917.

2nd Class.—2nd Lieut. A. Graham, S.R., from the 3rd Class, and to be Temp. Lieut. whilst so employed; Dec. 1st, 1917.

General List.—Temp. 2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C.:—P. C. Hoyland, R. W. Kent R., J. M. Musson, Gen. List, R. J. Everest, Gen. List, G. S. D. M. Pape, Gen. List, H. E. Ambrose, Gen. List, R. J. Montgomery-Moore, K.R. Rif. C. G. Heseltine, Gen. List, A. Fraser, Gen. List, A. S. Selby, Lan. Fus., F. C. Elstob, Gen. List, H. M. Jackson, R. I. Rif., W. Protheroe, Welsh R., L. M. Page, Gen. List, W. R. Cox, M.C., D. of Corn. L.I., R. H. Stocker, Gen. List, I. L. Pinson, S. Staff R., C. R. W. Knight, Gen. List, C. C. Knight, Gen. List, E. C. Kelly, Leins. R. Now Temp. Capts.:—A. Roulstone, Notts and Derby R., H. Turner, Gen. List, T. C. Thomson, Gen. List, C. T. Cleaver, M.C., Gen. List, H. P. Dean, Gen. List, C. C. Sharp, Gen. List; May 1st, 1917. Temp. 2nd Lieut. N. C. Dawber relinquishes his commission on account of ill-health contracted on active service, and is granted the hon. rank of 2nd Lieut. Temp. 2nd Lieut. J. A. Chapdelaine resigns his commission; Jan. 8th.

London Gazette Supplement, January 8th.

The following appointments are made:—

Special Appointment.—(Graded as a Wing Comdr.)—Capt. (Temp. Maj.) H. L. Cooper, S.R., Sqdn. Comdr., and to be Temp. Lieut.-Col. whilst so employed; Nov. 1st, 1917.

Flying Officers.—2nd Lieut. R. T. Edwards, R.F.A., S.R.; Nov. 28th, 1917. Lieut. F. Lupton, M.C., Sea. Highrs. (T.F.), and to be sec'd.; 2nd Lieut. (Temp. Lieut.) G. J. Ogg, High. L.I. (T.F.), from a Flying Officer (Obs.), seniority from Aug. 6th, 1916; Lieut. E. L. Doidge, Canadian Exped. Force; Dec. 10th, 1917. 2nd Lieut. (Temp. Lieut.) J. B. Henry, R. Innis. Fus., S.R., from a Flying Officer (Obs.); Dec. 11th, 1917, seniority from Feb. 12th, 1917; Dec. 8th, 1917. Lieut. J. W. Crane, Can. Exped. Force; Temp. 2nd Lieut. C. L. Glover, attd. Ches. R., and to be transfd. to R.F.C. Gen. List; Temp. 2nd Lieut. L. G. Harvey, attd. R. War. R., and to be transfd. to R.F.C. Gen. List; Dec. 12th, 1917. Temp. 2nd Lieut. S. C. Young, attd. Sea. Highrs., and to be transfd. to R.F.C. Gen. List; Dec. 13th, 1917. Temp. 2nd Lieut. J. G. Carey, attd. R. Sc. Fus., and to be transfd. to R.F.C. Gen. List; Dec. 14th, 1917. Temp. 2nd Lieut. G. J. Lusted, Gen. List; Dec. 24th, 1917. Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—W. H. Boyd, J. W. Coons, G. L. R. Parrish; Oct. 13th, 1917. C. J. W. McKeown; Nov. 1st, 1917. W. A. Pell; Nov. 2nd, 1917. J. E. Sydie; Nov. 20th, 1917. W. S. Robertson; Nov. 22nd, 1917. K. G. Siddaway, F. E. Gibson; Nov. 29th, 1917. J. Surfleet; Dec. 2nd, 1917. H. Ebrey; Dec. 8th, 1917. S. N. Jones; Dec. 9th, 1917. J. C. P. Bibberberg; Dec. 11th, 1917. G. R. Riley; Dec. 12th, 1917. E. B. Wilson; Dec. 13th, 1917. F. G. A. Robinson; Dec. 15th, 1917. The appointment of Temp. Lieut. R. H. Dunlop, Gen. List, notified in the *Gazette* of June 13th, 1917, is antedated to May 7th, 1917.

Assistant Instructors in Gunnery.—(Graded as Equipment Officers, 3rd Class).—Capt. T. R. Duff, Arg. and Suth'd Highrs. S.R., from a Flying Officer (Obs.); Lieut. C. A. Hoy, M.C., Cyclist Bn. (T.F.), from a Flying Officer (Obs.); Temp. Lieut. W. R. Carrick, Household Bn., and to be transfd. to R.F.C., Gen. List; 2nd Lieut. R. B. Dormor, R.E. (T.F.), from a Flying Officer (Obs.); 2nd Lieut. E. A. B. Carter, Middx. R. (T.F.), from a Temp. Lieut. M.G. Corps; Temp. 2nd Lieut. F. P. D. Scott, Gen. List, from a Flying Officer; Temp. 2nd Lieut. (on prob.) H. T. Buss, Gen. List, and to be confirmed in his rank; Capt. U. Brown, Welsh R. (T.F.), from M.C. Corps; Lieut. R. P. Cooper, Manch. R., S.R., from M.G. Corps; Lieut. L. W. Allen, M.C., R. War. R. (T.F.), from a Flying Officer (Obs.); Lieut. E. L. French, R. Ir. Rif., S.R., from a Flying Officer; 2nd Lieut. W. L. Lancaster, E. Surr. R., S.R., from a Temp. Lieut. M.G. Corps; Temp. 2nd Lieut. the Hon. H. G. H. Mulholland, Res. Regts. of Cav., and to be transfd. to R.F.C. Gen. List; Temp. 2nd Lieut. J. P. White, Gen. List, from a Flying Officer; Dec. 14th, 1917.

Balloon Officer.—Temp. Lieut. J. R. Budd, R.A., and to be transfd. to R.F.C. Gen. List; Dec. 14th, 1917.

Adjutants.—Temp. Capt. P. N. Logan, attd. Glouc. R., form a Flying Officer, and to be transfd. to R.F.C. Gen. List, vice Temp. Capt. E. N. E. Waldron, Gen. List; Oct. 28th, 1917. Temp. Lieut. S. C. Godfrey, M.C., R.Sc. Fus., and to be Temp. Capt. (with pay and allowances as Lieut.) whilst so employed; Oct. 30th, 1917. Temp. Lieut. H. W. Guy, Gen. List, from a Flying Officer (Obs.), and to be Temp. Capt. (with pay and allowances as Lieut.) whilst so employed, vice Capt. C. G. Beatson, Middx. R., S.R.; Nov. 5th, 1917.

Equipment Officers, 3rd Class.—Lieut. (Temp. Capt.) J. H. Whittaker-Swinton, R.E. (T.F.); Lieut. V. H. Tait, Lond. R. (T.F.), and to be sec'd.; Nov. 16th, 1917. Temp. Lieut. R. M. Davy, attd. W. York. R., and to be transfd. to R.F.C. Gen. List; Temp. 2nd Lieut. E. H. Eldridge, Garr. Bn., Wor. R., and to be transfd. to R.F.C. Gen. List; Dec. 1st, 1917. Temp. Capt. E. R. Tongue-Croxall, R.A., and to be transfd. to R.F.C. Gen. List; Dec. 10th, 1917. Temp. Lieut. T. H. Evans, Suff. R., and to be transfd. to R.F.C. Gen. List; Dec. 12th, 1917. 2nd Lieut. W. S. Littlewood; Dec. 27th, 1917. Temp. 2nd Lieut. R. Adams, Gen. List; Dec. 28th, 1917. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—D. H. Baylis; Oct. 1st, 1917. W. P. W. Smith; Oct. 18th, 1917. H. D. Harrison; Oct. 24th, 1917. J. W. Davis; Oct. 29th, 1917. J. F. Earle; Nov. 16th, 1917. P. C. Thornton, P. G. Beesley; Dec. 10th, 1917. H. Edwards, A. J. Winter; Dec. 11th, 1917.

General List.—To be Temp. Lieuts.:—Lieut. E. Emley, from R. Def. Corps (T.F.); Oct. 6th, 1917. J. C. B. P. Seaver; Dec. 6th, 1917. Temp. 2nd Lieut. G. R. Dawbarn relinquishes his commission on account of ill-health contracted on active service, and is granted the hon. rank of 2nd Lieut.; Jan. 9th. The following from R.F.C., to be Temp. 2nd Lieuts. (on prob.):—2nd Class Air Mech. H. J. Amery, Corp. W. C. Burns, Temp. Sergt.-Maj. S. W. Crawford, Actg. Sergt. W. D. Geddes, Corp. G. H. Heeley, Cdt. L. B. Mackinlay, 2nd Class Air Mech. G. J. Mayer, 1st Class Air Mech. W. Nettleship, 2nd Class Air Mech. G. F. Pugsley, Temp. Sergt.-Maj. A. Randle, Flight-Sergt. J. R. Salmon, Temp. Sergt.-Maj. M. F. Tomkins, 1st Class Air Mech. A. B. West, 2nd Class Air Mech. A. Wilkins, Flight-Sergt. S. T. I. Woodyatt; Dec. 1st, 1917. Temp. Sergt.-Maj. G. J. Lusted, from R.F.C., to be Temp. 2nd Lieut.; Dec. 24th, 1917. To be Temp. 2nd Lieuts. (on prob.):—Sqn. Sergt.-Maj. G. Albert, from Res. Regts. Cav., Pte. D. H. W. Alexander, from 5th Wor. R., S.R., Sergt. S. W. Bennett, from R. Fus., Corp. E. J. Harding, from Canadian A.M.C. Actg. Sergt. F. P. Johnson, from A.S.C., Corp. R. J. D. Killick, from H.A.C. (T.F.), L.-Corp. R. Locke, from Canadian Inf., Spr. A. W. Mansfield, from R.E.; Dec. 1st, 1917. C. H. Greswell; Dec. 27th, 1917. To be Temp. Capts. (without the pay or allowances of that rank) whilst employed as Actg. Adjs.:—Temp. Lieut. A. Le P. Jones, Hamps. R., Temp. Lieut. A. Broome, Gen. List, a Flying Officer (Obs.), Lieut. H. W. Eaton, R. Scots. (T.F.), 2nd Lieut. J. F. Woodthorpe, Norf. R., Temp. 2nd Lieut. H. Waddington, Manch. R., Temp. 2nd Lieut. C. F. Jex, Gen. List, a Flying Officer, Temp. 2nd Lieut. J. S. Curtis, Gen. List, 2nd Lieut. R. T. Wilson, High. L.I. (T.F.), Temp. 2nd Lieut. A. E. Burrows, attd. E. Lan. R.; Jan. 9th.

Memoranda.—To be 2nd Lieuts., whilst serving with R.F.C.:—Sergt. J. Keyes, from R.F.C.; Nov. 22nd, 1917. Temp. Sergt.-Maj. W. St. J. Littlewood; Dec. 27th, 1917.

London Gazette Supplement, January 9th.

The following temporary appointments are made at the War Office:—

Director.—Capt. (Temp. Lieut.-Col.) A. Huggins, D.S.O., R.F.C., S.R., from a Depôt Comdr., R.F.C., and to be Temp. Brig.-Gen. whilst so employed, vice Lt. Lt.-Col. W. B. Caddell, R.A.; Dec. 22nd, 1917.

The following appointments are made:—

Special Appointment.—(Graded as a Sqdn. Comdr.)—Lieut. (Temp. Capt.) R. H. Carr, S.R., a Flight Comdr., and to be Temp. Maj. whilst so employed; Nov. 1st, 1917.

Flight Commanders.—And to be Temp. Capts. whilst so employed:—Lieut. A. H. George, Ches. R. (T.F.); Oct. 7th, 1917. From Flying Officers:—Lieut. D. Stewart, R.G.A. (T.F.); Lieut. A. J. Bott, M.C., R.G.A., S.R.; Dec. 22nd, 1917.

Flying Officers.—Temp. 2nd Lieut. A. D. S. Catling, Gen. List, from an Equipment Officer, 3rd Class; Aug. 9th, 1917, seniority from Jan. 24th, 1917. 2nd Lieut. (Temp. Lieut.) T. F. Steele, Arg. and Suth'd. Highrs., S.R., from a Flying Officer (Obs.), seniority from Dec. 31st, 1916; Lieut. C. R. Mundy, Canadian Exped. Force; Temp. 2nd Lieut. A. MacGregor, attd. Arg. and Suth'd. Highrs., and to be transfd. to R.F.C. Gen. List; Nov. 30th, 1917. Temp. 2nd Lieut. J. K. Shook, attd. Sea. Highrs., and to be transfd. to R.F.C. Gen. List; Dec. 4th, 1917. Temp. Lieut. C. E. Williamson-Jones, Manch. R., from a Flying Officer (Obs.); Dec. 5th, 1917, seniority from Dec. 29th, 1916. Lieut. K. W. Murray, Canadian Exped. Force; Temp. 2nd Lieut. R. R. Greenlaw, attd. Arg. and Suth'd. Highrs., and to be transfd. to R.F.C. Gen. List; Dec. 6th, 1917. Lieut. F. M. F. West, R. Muns. Fus., S.R., from a Flying Officer (Obs.), Dec. 8th, 1917, seniority from April 1st, 1917. 2nd Lieut. W. E. Joseph, R.F.A., S.R.; Dec. 12th, 1917. 2nd Lieut. W. Fairweather, R. Scots. Fus. (T.F.), and to be seed.; Dec. 14th, 1917. Capt. G. H. S. Campbell, Canadian Exped. Force; Temp. Lieut. J. Brookner, Gen. List, from a Flying Officer (Obs.), seniority from Oct. 23rd, 1916; Dec. 15th, 1917. 2nd Lieut. A. F. G. Clarke, A.S.C., and to be seed.; Dec. 17th, 1917. Lieut. A. C. Dean, Canadian Exped. Force; Dec. 18th, 1917. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—G. McK. MacWilliams; Sept. 22nd, 1917. T. Killeen; Dec. 6th, 1917. W. E. Davies; Dec. 8th, 1917. G. H. Wood, H. L. Groom; Dec. 12th, 1917. C. G. Ross; Dec. 13th, 1917. E. G. Forder; Dec. 14th, 1917. C. Chambers, G. K. Runciman, D. C. Davies, H. G. Heather, T. A. Lidstone, C. R. Chapman, E. Cardinal; Dec. 15th, 1917. J. C. Louw; Dec. 18th, 1917. The appointment of the following is antedated as follows:—2nd Lieut. E. W. Percival, S.R., to March 13th, 1917. Temp. 2nd Lieuts. Gen. List:—J. I. Crofton, F. Lord, E. K. Davidson, W. R. Eastman, N. C. Roystan, to Sept. 22nd, 1917; L. J. Williams, to Oct. 6th, 1917; (Temp. Lieut.) F. M. C. Houghton, to Oct. 17th, 1917, seniority May 3rd, 1916.

Instructor in Gunnery.—(Graded as an Equipment Officer, 1st Class).—Capt. A. J. G. Anderson, Lond. R. (T.F.), from an Instr. (graded as an Equipment Officer, 1st Class), Schools of Aerial Gunnery; Nov. 8th, 1917.

Balloon Officers.—2nd Lieut. H. C. Tallboy, R.G.A., S.R.; Dec. 16th, 1917. Lieut. J. A. B. Thompson, M.C., Res. of Off.; Dec. 20th, 1917.

Adjutants.—Lieut. C. E. Morgan, ret., and to be Temp. Capt. (with pay and allowances as Lieut.) while so employed, vice Lieut. F. S. Isaac, Worc. R., S.R.; Aug. 31st, 1917 (substituted for the notification in the *Gazette* of Sept. 26th, 1917). Lieut. (Temp. Capt.) T. M. Eggar, Lond. R. (T.F.); Sept. 6th, 1917 (substituted for the notification in the *Gazette* of Oct. 12th, 1917). Lieut. (Temp. Capt.) C. A. M. Holloway, R.W. Kent R., relinquishes his temp. rank on ceasing to hold his appointment; Nov. 26th, 1917.

Dépot Commanders.—Bt. Lieut.-Col. (Temp. Brig.-Gen.) W. B. Caddell, R.A., to relinquish his temp. rank and to be Temp. Lieut.-Col. while so employed; Dec. 22nd, 1917.

Equipment Officers, 1st Class.—From the 2nd Class, and to be Temp. Capt. while so employed:—Lieut. G. D. Etches, S.R.; Dec. 22nd, 1917. Lieut. G. G. Lever, R. Fus., S.R.; Dec. 23rd, 1917.

2nd Class.—From the 3rd Class:—2nd Lieut. S. L. Amor, S.R., and to be Temp. Lieut. while so employed; Aug. 1st, 1917. 2nd Lieut. J. Y. de la C. Elliott, S.R., and to be Temp. Lieut. while so employed; Dec. 1st, 1917; Temp. Lieut. S. T. Smith, Gen. List; Dec. 4th, 1917. 2nd Lieut. (Temp. Lieut.) C. B. Carr, Cyclist Bn. (T.F.); Temp. 2nd Lieut. J. W. Maddock, Gen. List, and to be Temp. Lieut. while so employed; Dec. 22nd, 1917. Temp. Lieut. H. P. Branwell, Gen. List; Dec. 23rd, 1917. 2nd Lieut. J. R. G. Rowden, S.R., and to be Temp. Lieut. while so employed; Lieut. G. D. Harrison, S.R., Lieut. D. B. James, S.R.; 2nd Lieut. W. G. Cooke, S.R., and to be Temp. Lieut. while so employed; Jan. 1st.

3rd Class.—Lieut. W. R. S. Humphreys, S.R., from a Flying Officer; Sept. 29th, 1917. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—A. E. Walter; Dec. 8th, 1917; W. Adam; Dec. 14th, 1917. G. H. Blake; Dec. 19th, 1917.

Schools of Instruction.—Central Flying School.

Commandant.—Capt. (Temp. Lieut.-Col.) A. J. L. Scott, M.C., Yeo. (T.F.), a Wing Comdr., and to retain his temp. rank whilst so employed; Nov. 23rd, 1917.

Schools of Military Aeronautics.

Instructor (Graded as a Flight Comdr.).—Capt. C. O. Fairbairn, N. Lan. R., S.R., relinquishes his appointment on resuming the appointment of Flight Comdr.; Dec. 5th, 1917.

Schools of Aerial Gunnery.

Assistant Instructor (Graded as an Equipment Officer, 2nd Class).—Lieut. W. N. Spragg, S.R., an Equipment Officer, 3rd Class; Oct. 19th, 1917.

Schools of Technical Training.

Chief Instructor (Graded as a Park Comdr.).—The appointment of Lieut. (Temp. Capt.) C. G. Tucker, S.R., notified in the *Gazette* of Oct. 3rd, 1917, is post-dated to Sept. 17th, 1917.

Instructors (Graded as Equipment Officers, 1st Class).—From graded as Equipment Officers, 2nd Class, and to be Temp. Capts. whilst so employed; Sept. 14th, 1917:—Lieut. J. D. Troup, S.R.; 2nd Lieut. (Temp. Lieut.) W. Millett, Gen. List; Temp. Lieut. J. Jensen, Gen. List, from an Asst. Instr. (graded as an Equipment Off., 2nd Class), and to be Temp. Capt. whilst so employed.

Assistants Instructors (Graded as Equipment Officers, 2nd Class).—Equipment Officers, 3rd Class, and to be Temp. Lieuts. whilst so employed:—2nd Lieut. H. I. Allen, S.R., 2nd Lieut. R. G. Whitcombe, S.R.; Temp. 2nd Lieut. G. E. Bower, Gen. List, to Dec. 16th, 1917, inclusive; 2nd Lieut. D. Richardson, S.R.; Temp. 2nd Lieut. F. E. Cooper, Gen. List; Sept. 14th, 1917.

General List.—Temp. Lieut. E. M. Roberts, Gen. List, relinquishes his commission on account of ill-health, and is granted the hon. rank of Lieut.; Jan. 10th. Temp. Lieuts. to be Temp. Lieuts.:—G. Sturt, J. B. Jameson (Temp. Lieut.) J. H. O'Connell, G. C. Heseltine, T. E. J. MacWeeney, (Temp. Lieut.) J. A. Gorges, A. V. Milton, W. H. Valentine, H. A. Johnston, J. H. Jenkinson, (Temp. Lieut.) S. Jennings, W. E. W. Cushing, (Temp. Lieut.) H. S. Goodliffe, G. C. Pilgrim, R. L. Crofton, F. Planche-Hearn, F. O. Burnley, (Temp. Lieut.) H. A. Tadley, C. O. Bean, A. D. Light, W. English, R. Fletcher, W. Douglas, (Temp. Capt.) A. C. H. Groom, (Temp. Capt.) F. H. Bickerton, V. M. de Babare, K. A. McFadyen, H. C. W. Strickland, J. R. Shaaks, (Temp. Capt.) A. W. Kean, M.C., R. C. J. Hervey, (Temp. Lieut.) O. Williams, H. G. D. Erickson, W. MacLachan, F. S. Wallis, (Temp. Lieut.) M. Dodd, J. E. Dumbleton, H. V. Caunt, (Temp. Lieut.) G. S. Murray, R. T. Percival, L. D. Brown, E. Carpenter, E. N. Hewitt, J. Mackenzie, R. P. Lamb, R. H. Horwood, D. R. Mitchell, A. Dufton, W. R. Hibbins, L. A. W. Clift, E. V. Clark, J. R. Ross, E. M. Pocock, (Temp. Maj.) R. Raymond-Barker, M.C., V. H. Legg, S. C. Shepherdson, F. E. Wilshire, W. F. Mytton, G. E. Browne, T. M. Goldon, F. A. Tattersall, Q. E. McConnell, (Temp. Lieut.) C. W. T. Riley, H. C. Blythe, G. R. O'Sullivan, (Temp. Capt.) D. B. King, (Temp. Lieut.) R. G. H. Davis, (Temp. Capt.) C. N. Seedhouse, (Temp. Capt.) W. P. M. Newman, W. D. McKeown, A. C. A. Scates, F. Marshall-Lewis (since killed in action), C. R. Thomas, (Temp. Lieut.) C. G. Moore, L. A. Colvert, H. Haslam; July 1st, 1917. A. N. Burrow, R. A. George; July 4th, 1917. H. J. Dixon; July 12th, 1917. G. W. McKenzie; July 13th, 1917. W. L. Sumison; July 20th, 1917. G. J. Bakewell; July 29th, 1917. L. S. Worthring; July 30th, 1917. M. J. Dalton; Aug. 18th, 1917. C. W. Leggett; Sept. 3rd, 1917. D. Sinclair; Sept. 13th, 1917. A. G. Powell, F. H. Cave; Sept. 13th, 1917. A. G. Powell, F. H. Cave;

Oct. 16th, 1917. H. V. Rabagliati; Oct. 22nd, 1917. S. H. Preston; Nov. 6th, 1917. H. Owen; Nov. 7th, 1917. G. R. Soden; Nov. 13th, 1917. F. W. Rennie; Nov. 16th, 1917. G. H. Stocking; Nov. 24th, 1917. Temp. 2nd Lieut. E. W. MacLean resigns his commission; Jan. 10th. Temp. 2nd Lieut. S. Caldwell resigns his commission, to resume his medical studies, and is granted the hon. rank of 2nd Lieut.; Jan. 10th. To be Temp. 2nd Lieuts. (on prob.):—Sgt. E. C. Owens, from Lond. R. (T.F.); 1st Class Air Mech. W. G. Rogers, from R.F.C.; Dec. 1st, 1917. A. A. Longworth; Dec. 6th, 1917. E. M. McCormack, A. J. Morris; Dec. 27th, 1917; R. W. Selby, F. W. Martyn; Dec. 28th, 1917.

London Gazette Supplement, January 10th.

The following appointments are made:—

Flight Commanders.—2nd Lieut. W. A. Forsyth, R.A., from a Flying Officer, and to be Temp. Capt. while so employed; June 30th, 1917. Capt. C. Fawcett, R. S. Suss, R. (T.F.), from a Flying Officer (Obs.); Sept. 15th, 1917. Lieut. A. R. Boeree, Sufi. R. (T.F.), from a Flying Officer, and to be Temp. Capt. while so employed; Oct. 5th, 1917. Capt. F. H. Mardall, Ind. Inf., from a Flying Officer; Nov. 3rd, 1917. From Flying Officers, and to be Temp. Capts. while so employed:—Temp. Lieut. F. M. Kitto, Gen. List; Dec. 1st, 1917. 2nd Lieut. (Temp. Lieut.) A. G. Bond, S. Lan. R.; Dec. 10th, 1917. Lieut. A. H. Orlebar, Bedf. R. (T.F.); Dec. 20th, 1917. Temp. 2nd Lieut. C. Cornelius Wheeler, Gen. List; Dec. 22nd, 1917.

Flying Officers.—Lieut. S. L. Dowsell, Canadian Exped. Force; Dec. 18th, 1917. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—A. O. Lewis Roberts; Oct. 23rd, 1917. J. N. Gallaway; Dec. 4th, 1917. J. S. Young, R. D. Kennedy, P. McAllen; Dec. 15th, 1917. D. R. Griffiths, V. M. Yeates, G. W. Manton, H. D. Wright; Dec. 18th, 1917.

Adjutants.—Temp. 2nd Lieut. A. F. Nimmo, Cam's Highrs., and to be Temp. Capt. (with pay and allowances as Lieut.) whilst so employed, vice Lieut. (Temp. Capt.) C. W. Wise, A.S.C., S.R.; Oct. 27th, 1917. Capt. C. V. Beresford, Wor. R.; Dec. 3rd, 1917.

Equipment Officers, 1st Class.—Lieut. (Temp. Capt.) F. G. Hogarth, S.R., from the 2nd Class, and to retain his temp. rank whilst so employed; Aug. 24th, 1917. 2nd Class.—From the 3rd Class:—Lieut. J. J. Bartlett, S.R.; 2nd Lieut. W. C. Hayward, and to be Temp. Lieut. whilst so employed; Jan. 1st.

General List.—Temp. 2nd Lieut. E. C. W. Steenberg resigns his commission, Jan. 11th. The surname of Temp. and Lieut. J. B. Mawdsley is as now described and not as in the *Gazette* of March 8th, 1917, and subsequent *Gazettes*. To be Temp. 2nd Lieuts:—Pte. (Actg. L. Corp.) W. Steele, from High. L.I. (T.F.); Sept. 30th, 1917. 2nd Class Air Mech. J. A. Hesselden, from R.F.C.; Oct. 19th, 1917. To be Temp. 2nd Lieuts. (on prob.):—Sgt. A. H. Knight, from R.F.C.; Dec. 27th, 1917. C. Lill; Jan. 1st. Cadets to be Temp. 2nd Lieuts. (on prob.):—R. A. Myers, J. C. Walker, W. J. Millen, C. J. Lewin; Dec. 30th, 1917.

London Gazette Supplement, January 11th.

Squadron Commanders.—From Flight Commdrs., and to be Temp. Maj. whilst so employed.—Temp. 2nd Lieut. (temp. Capt.) K. R. Binning, M.C., Gen. List; Nov. 7th, 1917. Capt. O. A. Westendarp, Lond. R., T.F.; Nov. 24th, 1917.

Flying Officers.—Lieut. C. MacLaughlin, Canadian F.A., from a Flying Officer (Obs.), with seniority, March 20th, 1917. Lieut. A. H. Hinton, Canadian F.A., from a Flying Officer (Obs.), with seniority, April 28th, 1917; Dec. 13th, 1917. Lieut. G. S. Roden, Canadian Rly. Serv.; Dec. 16th, 1917. 2nd Lieut. (Temp. Lieut.) H. B. D. Harrington, Lond. R. T.F., from Flying Officer (Obs.); Dec. 17th, 1917, with seniority March 22nd, 1917. Temp. 2nd Lieuts (on prob.):—P. G. Ratliff; Oct. 13th, 1917. A. D. Purvis; Oct. 18th, 1917. V. Rodgers, E. C. Grimes, T. J. Gillow; Nov. 26th, 1917. J. Faulkner; Nov. 27th, 1917. J. R. Field; Nov. 30th, 1917; J. L. S. Fry; Dec. 3rd, 1917. S. Yates; Dec. 4th, 1917. P. Barker; Dec. 6th, 1917. A. R. McPherson; Dec. 11th, 1917. G. H. Johnston; Dec. 12th, 1917. N. J. Forbes, S. C. Mittmack; Dec. 15th, 1917. J. H. Forbes; Dec. 19th, 1917. Lieut. (Temp. Capt.) H. V. Acland, Canadian Local Forces, reverts from a Flight Comdr., and relinquishes his temp. rank; Dec. 17th, 1917, with seniority March 1st, 1916. The appointment of the following Temp. 2nd Lieuts. is antedated as follows.—To July 17th, 1917: D. R. Mackie, R.E., R. A. Davey, Gen. List. To Sept. 23rd, 1917: T. G. Kernick, Gen. List, G. M. Saunders, Gen. List.

Equipment Officers, 1st Class.—From the 2nd Cl.: Capt. C. Higham, Manch. R. T.F.; Oct. 1st, 1917. And to be Temp. Capts. whilst so employed:—Lieut. J. C. Forsyth, S.R., 2nd Lieut. (Temp. Lieut.) E. Rivers-Smith, S.R., 2nd Lieut. (Temp. Lieut.) A. Young, S.R.; Nov. 1st, 1917. Lieut. W. J. Sinclair, S.R., 2nd Lieut. (Temp. Lieut.) J. A. Cowling, S.R.; Dec. 1st, 1917. Temp. Capt. L. M. Lilley, Gen. List; Dec. 7th, 1917. Capt. C. H. Awcock, R.A.; Dec. 20th, 1917. Lieut. H. Loeffler, S.R.; Jan. 1st. 2nd Class.—Temp. 2nd Lieut. J. Clinkskill, Gen. List, from a Flying Officer and to be Temp. Lieut. while so employed; Sept. 1st, 1917. From the 3rd Cl.: Lieut. R. M. Ward, S.R.; Sept. 17th, 1917. 2nd Lieut. M. R. Grover, S.R., and to be Temp. Lieut. while so employed; Sept. 26th, 1917. Temp. Capt. T. Ellis, Gen. List; Oct. 1st, 1917. And to be Temp. Lieuts. while so employed: 2nd Lieut. D. B. Thorp, S.R.; 2nd Lieut. S. G. Linsen, S.R., and 2nd Lieut. H. Smith, S.R.; Oct. 26th, 1917. Capt. L. J. Jones, Lond. R. T.F. Lieut. L. J. Pearce, S.R., Temp. Lieut. H. A. Blanchard, Gen. List; Nov. 1st, 1917. And to be Temp. Lieuts. while so employed: 2nd Lieut. W. T. Davis, S.R., Temp. 2nd Lieut. C. E. Tebbis, Gen. List; 2nd Lieut. J. F. Adye, S.R., Temp. 2nd Lieut. H. V. Page, Gen. List; Dec. 1st, 1917. 2nd Lieut. G. H. Warneken, S.R., Temp. 2nd Lieut. T. F. Braines, Gen. List; 2nd Lieut. E. Brown, S.R., and 2nd Lieut. A. G. Stradling, S.R.; Jan. 1st. 3rd Class.—Decem. 15th, 1917: 2nd Lieut. W. W. Henderson, T.F., Res., and 2nd Lieut. E. P. Terry, E. Surr. R., T.F., and to be seed. Lieut. H. Cooper, M.C., R. Fus., and to be seed. 2nd Lieut. (on prob.) R. F. Jones, S.R., Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: T. Mundy; Nov. 1st, 1917. J. E. Tod; Nov. 10th, 1917. T. P. Prichard; Nov. 24th, 1917. J. M. Poynit; Dec. 13th, 1917. D. K. Leed, H. D. Barry, J. B. Donald, P. Heard, C. H. Bull, G. B. Fielding, T. Goulding, D. H. S. Reid, A. H. Scaife, A. T. Bebbington, W. H. P. Parker, C. Galwayne, H. J. L. Greatwich, A. H. Angwin, A. Jennings, J. F. Lamonty, J. G. Le Brun, P. C. Smith, E. L. Hocking, L. Knowles; Dec. 15th, 1917. G. H. Rice; Dec. 19th, 1917. W. J. O. Newton; Dec. 20th, 1917. F. C. Wild; Dec. 22nd, 1917. W. D. Geddes; Dec. 24th, 1917. Rank of Lieut. P. Rosie, Yeo, T.F., is as now described, and not as in the *Gazette* of Dec. 7th, 1917.

Schools of Instruction.—Schools of Military Aeronautics.

Examining Officer.—(Graded as Flight Commanders).—Temp. Lieut. W. H. Dolphin, Gen. List from a Flying Officer and to be Temp. Capt. whilst so employed; Nov. 28th, 1917.

General List.—Temp. 2nd Lieut. J. S. Bradley, M.G. Corps, is transferred to Gen. List; Sept. 20th, 1917. Cdts. to be Temp. 2nd Lieuts (on prob.): Dec. 18th, 1917: F. R. Atkinson, A. K. Barter, F. N. Brace, R. P. Bliss, C. K. G. Brown, H. Bosher, J. L. Brown, L. R. P. Backhouse, L. C. J. Barlow, E. J. Clark, R. Carnie, E. S. Coombes, W. D. Davidson, C. C. Dance, R. E. S. Gibson, D. R. Goudie, N. McL. Hill, A. Lowe, P. J. Lockwood, J. Lumson, R. N. Pick, F. C. B. Phillips, W. L. Pinder, W. P. Purvis, F. L. Teploc, G. H. Parker, C. A. Procter, A. Reid, A. Rigomonti, E. Singleton, A. Slinger, R. Smith, W. A. Tagg, J. Tremain, H. Tanabebaum, L. F. Thurlow, A. J. Viveash, W. N. V. Someren, S. R. Wells, T. H. Walker, T. O. Wrightson, J. W. Whitmarsh, C. Wealthall, R. Walker, J. A. Wilson, J. A. Weller, T. Collins, J. Gibson, O. L. Jones, T. S. Mobery, H. P. Souter.

Memorandum.—Sgt. J. A. McCudden, R.F.C., to be 2nd Lieut. whilst serving with R.F.C.; Dec. 17th, 1917.



London Gazette Supplement, Jan. 12th.

The following appointments are made :—

Squadron Commanders.—Capt. C. Mackay, M.C., Leins. R., Spec. Res., from a Flight Comdr., and to be Temp. Major whilst so employed; Dec. 23rd, 1917.

Flight Commanders.—From Flying Officers :—Temp. Capt. C. H. Brewer, Bedf. R.; Dec. 19th, 1917. Capt. V. E. Schweitzer, Canadian Exped. Force; Dec. 30th, 1917. And to be Temp. Capts. whilst so employed :—Lieut. O. E. Ridewood, A.S.C., T.F.; Dec. 19th, 1917. Lieut. W. U. Dykes, Sco. Rif., S.R.; Dec. 23rd, 1917. Temp. Lieut. J. C. Liddle, Gen. List; Dec. 26th, 1917. Lieut. F. R. Hudson, S.P., Lieut. E. Pownall, L'pool R., T.F., Lieut. F. L. Luxmoore, S.R., Temp. Lieut. C. J. Marchant, Gen. List, Temp. Lieut. L. Reynolds, Gen. List, 2nd Lieut. Temp. Lieut. E. A. Lloyd, Yeo, T.F.; Jan. 1st.

Flying Officers.—Temp. 2nd Lieuts. D. N. Harland, Garr. B., York R., and to be transferred to R.F.C. Gen. List; Aug. 1st, 1917. 2nd Lieut. E. T. Thorpe, R. War. R., S.P., and to be sec'd.; Sept. 4th, 1917. Capt. H. A. Courtenay, A.S.C., and to be sec'd.; Sept. 27th, 1917. Temp. Capt. S. J. Palmer, Lan. Fus., and to be transferred to R.F.C. Gen. List; Nov. 1st, 1917. Lieut. D. E. D. Taylor, M.C., R. Fus., and to be sec'd. Lieut. A. J. Olorenshaw, Ind. Army Res. of Officers; Nov. 5th, 1917. Temp. Lieut. O. J. Hargrave, Garr. Bn., North'd Fus., and to be transferred to R.F.C. Gen. List; Nov. 8th, 1917. Lieut. H. A. Keyser, Middx R., T.F.; Nov. 26th, 1917. the date of the appt. of Temp. 2nd Lieut. W. H. Peacock, Gen. List (since killed), is April 5th, 1917, and not as in the *Gazette* of May 2nd, 1917.

Adjutants.—Capt. G. H. Errington, N. Staff. R., S.P., and to be sec'd.; Jan. 3rd. And to be Temp. Capt. (with pay and allowances as Lieut.) whilst so employed :—Lieut. W. L. Dingley, Ches. R., T.F., and to be sec'd.; Dec. 22nd, 1917. Lieut. A. C. Workman, R. Ir. Rif., S.R., and to be sec'd.; Dec. 27th, 1917. Temp. 2nd Lieut. (Temp. Lieut.) J. H. Taylor, Gen. List, from a Flying Officer; Jan. 1st.

Equipment Officers, 2nd Class.—2nd Lieut. D. E. Barnett, S.R., from the 3rd Cl., and to be Temp. Lieut. whilst so employed; Oct. 16th, 1917. 3rd Class.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank :—J. C. Corbin; Dec. 12th, 1917. D. R. Thomas; Dec. 17th, 1917.

General List.—Temp. Sergt.-Major C. Rapley, from R.F.C., to be Temp. 2nd Lieut.; Dec. 21st, 1917. The Christian names of Temp. 2nd Lieut. (on prob.) Charles Ivan Fletcher are as now described, and not as in *Gazette* of Sept. 28th, 1917. To be Temp. 2nd Lieuts. (on prob.).—Qmr.-Sgt. P. G. May, from R.F.C., Cdt. C. Souchout; Nov. 13th, 1917. 2nd Cl. Air Mech. G. M. C. T. Whitehead, from R.F.C.; Nov. 29th, 1917. Sgt.-Maj. A. Kennish, from Dorset R.; Dec. 12th, 1917. J. H. Slingsby; Dec. 20th, 1917. Sgt. G. E. H. Smith, from R.F.C.; Dec. 21st, 1917. A. C. Whitney, A. L. Cooke, Staff Sgt. F. J. MacLennan, from Sch. of Musketry, Act. Bombr. C. Roden, from R.F.A., T.F., 1st Cl. Air Mech. C. E. Hodges, from R.F.C.; Dec. 27th, 1917. E. C. Day, R. R. Wilson, P. G. Pollard, late 2nd Lieut. E. Afr. Trans. Corps, H. C. Coutts; Dec. 28th, 1917. The appointments of Temp. 2nd Lieut. (on prob.) T. Rivers-Fry, notified in *Gazette* of Dec. 19th, 1917, is post-dated to Dec. 28th, 1917.

Supplementary to Regular Corps.—Lieut. (Temp. Capt.) F. N. Shumaker resigns his commission, and is granted the hon. rank of Capt. Lieut. E. A. Kelly is placed on the retired list on account of ill-health; Jan. 13th.

London Gazette Supplement, January 14th.

The following appointments were made :—

Staff Officer, 3rd Class (Graded as a G.S.O., 3rd Grade).—Capt. R. C. Boustead, Midd's R. (T.F.), and to be sec'd., vice Temp. Capt. R. H. Peto, Gen. List; Oct. 19th, 1917.

Squadron Commanders.—From Flight Comdrs., and to be Temp. Majors whilst so employed :—Lieut. (Temp. Capt.) A. J. Capel, Som. L.I.; July 30th, 1917. Temp. 2nd Lieut. (Temp. Capt.) G. W. M. Green, D.S.C., M.C., Gen. List; Aug. 28th, 1917. Lieut. (Temp. Capt.) A. de B. Brandon, D.S.O., M.C., S.R.; Oct. 1st, 1917. Lieut. (Temp. Capt.) C. S. Ross, S.R.; Oct. 4th, 1917. Temp. Capt. F. W. Honnet, Gen. List; Nov. 2nd, 1917. 2nd Lieut. (Temp. Capt.) J. R. Gould, K.E. Horse, S.R.; Nov. 25th, 1917. Temp. 2nd Lieut. (Temp. Capt.) R. P. Willock, Gen. List; Dec. 30th, 1917.

Flight Commander.—Temp. 2nd Lieut. A. Hepburn, Gen. List, from a Flying Officer, and to be Temp. Capt. whilst so employed; Jan. 2nd.

AIRCRAFT WORK AT THE FRONT. OFFICIAL INFORMATION.

British.

Admiralty, January 5th.

"On the 4th instant a bombing raid was carried out by naval aircraft on Ghistelles aerodrome, and numerous bombs were dropped among the sheds and buildings. All our machines returned safely."

General Headquarters, January 5th.

"On the 4th instant there was again great activity in the air, and photographic and artillery work was continued all day. The strong wind prevented our aeroplanes from carrying out long-distance bombing raids, but over 250 bombs were dropped on Denain (north of Cambrai), Ledeghem, Menin, and Roulers railway stations. Many thousands of rounds were fired from a low height at active hostile machine guns and at the enemy's trenches. Most of the fighting was confined to the northern portion of the front, where eight hostile machines were brought down and two others driven down out of control. Five of our machines are missing. During the night of the 4th-5th instant, our machines attempted to bomb once more the factories and railway communications at Maizières-les-Metz. Although visibility was bad and the sky covered with low clouds, several pilots succeeded in dropping their bombs on their objectives, while others released their bombs on other targets of military importance in the neighbourhood. All our machines returned."

General Headquarters, January 6th.

"On the 5th instant little flying was possible, owing to unfavourable weather, but half-a-ton of explosives was dropped by our aeroplanes, and nearly 6,000 rounds fired from machine-guns from the air at the enemy's troops and at other targets."

"On the night of the 5th-6th instant over half-a-ton of bombs was dropped on Ramegnies Chin aerodrome, where direct hits were obtained, and also on stations and hostile billets. A ton of bombs was also dropped on Conflans Station and sidings, north-west of Metz. Many direct hits were observed and a large explosion and fire were caused. Half-a-ton of bombs was dropped on Courcelles station, south-east of Metz."

General Headquarters, January 7th.

"On the 6th inst. much successful work was accomplished by our aeroplanes in co-operation with artillery. A large number of photographs were taken and 12,000 rounds were fired from machine-guns at hostile troops, transport and other targets. Nearly 3 tons of bombs were dropped by our aeroplanes on different objectives. A number of fights took place in the air, as the result of which six hostile machines were brought down and two others driven down out of control. One of our machines is missing."

War Office, January 8th.

"**Italian Front.**—During the past week we have destroyed eight enemy machines and driven down two others out of control, losing only one machine ourselves. Several successful raids on enemy aerodromes have been carried out."

Flying Officers.—Temp. 2nd Lieut. A. J. Clark, A.S.C., and to be transfd. to R.F.C., Gen. List; Dec. 18th, 1917. Lieut. W. W. Brymer, R.G.A. (T.F.), and to be sec'd.; Lieut. W. G. Perry, Canadian Exped. Force; Dec. 19th, 1917. Temp. Lieut. A. G. Tooth, R. Dub. Fus.; Lieut. G. Broadbent, Yeo. (T.F.), and to be sec'd.; 2nd Lieut. V. S. Bennett, Newfoundland R.; Dec. 20th, 1917. 2nd Lieut. (Temp. Lieut.) W. L. Coutts, Arg. and Suth'd Highrs. (T.F.), from a Flying Officer (Obs.); Dec. 21st, 1917, seniority Nov. 16th, 1916. Lieut. H. P. Illesley, Canadian Exped. Force, from a Flying Officer (Obs.), seniority from April 6th, 1917; 2nd Lieut. (Temp. Lieut.) L. H. Short, Durh. L.I. (T.F.), from a Flying Officer (Obs.), seniority Jan. 15th, 1917; 2nd Lieut. R. L. McK. Barbour, K.O. Sco. Bord, and to be sec'd.; Dec. 22nd, 1917. Temp. and Lieuts. (on prob.), Gen. List, and to be confirmed in their rank :—J. W. Trusler; Sept. 22nd, 1917. S. T. Stephens; Oct. 16th, 1917. R. Manzer; Oct. 24th, 1917. A. W. Blowers; Oct. 26th, 1917. C. M. G. Farrell; Oct. 29th, 1917. P. B. Holgate, N. B. Scott, B. R. Perry; Nov. 1st, 1917. W. E. Shields, C. MacKenzie, G. F. Pfeifer, I. A. Peers; Nov. 3rd, 1917. H. V. Jellicoe; Nov. 4th, 1917. V. R. Brown, W. H. Taylor; Nov. 5th, 1917. D. W. Pratt, J. S. Griffith; Nov. 6th, 1917. C. Lankin, W. M. Thomson; Nov. 7th, 1917. R. C. Bark, T. Le Messurier; Nov. 8th, 1917. H. C. Senior; Nov. 9th, 1917. O. St. C. Harris; Nov. 25th, 1917. C. R. O'Hagan; Dec. 15th, 1917. E. A. Richardson, G. F. E. Harrison; Dec. 16th, 1917. J. G. Hamilton, W. R. Greathead; Dec. 18th, 1917. H. Jeffery, T. W. Banks, R. H. Yell, F. A. Benitz; Dec. 19th, 1917. D. W. Marriot, H. W. McCarthy, G. I. Murray; Dec. 20th, 1917. L. L. K. Straw; Dec. 21st, 1917. N. P. Willis, B. G. Nicholson; Dec. 22nd, 1917. A. R. Anthony; Dec. 23rd, 1917. The rank of Lieut. J. A. Grenier, Canadian Exped. Force, is as now described, and not as in the *Gazette* of Dec. 13th, 1917.

Balloon Commander (Graded as a Balloon Officer).—Temp. Lieut. T. C. Morgan, Gen. List, from a Balloon Officer; Dec. 20th, 1917.

Special Appointment (Graded as a Park Comdr.).—Temp. Capt. R. F. Stapleton-Cotton, Gen. List, from an Equipment Officer, 1st Class, and to be Temp. Maj. whilst so employed; Dec. 13th, 1917.

Equipment Officer, 3rd Class.—2nd Lieut. A. Ward; Dec. 28th, 1917.

Schools of Instruction.—Schools of Military Aeronautics.

Assistant Instructor (Graded as an Equipment Officer, 2nd Class).—Temp. 2nd Lieut. W. J. O. Newton, Gen. List, from an Equipment Officer, 3rd Class, and to be Temp. Lieut. whilst so employed; Dec. 21st, 1917.

Schools of Aerial Gunnery.

Commandant of a School of Aerial Gunnery (Graded as a Squadron Comdr.).—Capt. A. G. H. Carr, York and Lanc. R. (T.F.), from a Comdr. (graded as a Flight Comdr.), and to be Temp. Maj. whilst so employed; Dec. 4th, 1917.

Instructors in Gunnery.—(Graded as Equipment Officers, 1st Class).—Temp. Lieuts., Gen. List, from Instrs. in Gunnery (graded as Equipment Officers, 2nd Class), and to be Temp. Capt. whilst so employed :—C. G. Riley; Aug. 16th, 1917. C. P. H. Gunyon; Nov. 1st, 1917. F. L. Bristow; Nov. 8th, 1917.

General List.—Temp. Lieut. R. B. Cameron resigns his commission to resume his medical studies, and is granted the hon. rank of Lieut.; Temp. 2nd Lieut. H. W. Carlaw resigns his commission; Jan. 15th. The surname of Temp. 2nd Lieut. B. A. McCubbin is as now described, and not as in the *Gazette* of Dec. 3rd, 1917.

Aeronautical Inspection Department.

London Gazette Supplement, January 3rd.

Temp. Hon. Lieut. G. Ramage to be Temp. Hon. Capt. whilst employed as Insp'r., Aeronautical Insp'n. Dept.; June 1st, 1917.

London Gazette Supplement, January 5th.

To be Temp. Hon. Lieuts. whilst employed as Assistant Insp'rs., Aeronautical Insp'n. Dept.:—T. Reynolds, H. Turner; June 1st, 1917. J. M. M. Munro; July 5th, 1917.

London Gazette Supplement, January 11th.

J. Beck to be Temp. Hon. Lieut. whilst employed as Assistant Inspector A.I.D.; June 1st, 1917.

London Gazette Supplement, January 12th.

H. T. Woodsmith to be Temp. Hon. Lieut. whilst employed as Assistant Inspector A.I.D.; June 1st, 1917.

General Headquarters, January 8th.

"On the 7th inst. very little work in the air was possible owing to thick mist and rain. After dark, there was a short fine interval, during which our machines dropped bombs on Roulers and Courtrai railway stations."

War Office, January 10th.

"**Mesopotamia.**—On January 3rd 2 Turkish aeroplane was brought down by one of our machines and destroyed."

General Headquarters, January 11th.

"During the morning of the 9th inst. there was great activity in the air. A great deal of artillery work was accomplished and many photographs were taken. Bombs were dropped on the enemy's billets and huts, and hostile troops in the trenches were repeatedly attacked with machine-gun fire from a low altitude. Four hostile machines were brought down in air fighting, and two others were driven down out of control. Three of our aeroplanes are missing; of these, two were seen to collide during a combat over the enemy's lines. After 1 p.m. snow fell, rendering flying impossible."

General Headquarters, January 11th.

"During the 10th inst. our aeroplanes carried out a considerable amount of successful artillery work in spite of unfavourable weather. Ground targets were engaged with machine gun fire; nearly two tons of bombs were dropped on an ammunition dépôt in the vicinity of Courtrai and on other targets. One enemy machine was driven down out of control. One of our machines is missing."

War Office, January 11th.

"**Italian Front.**—Our aeroplanes attacked seven hostile machines yesterday, crashing two and driving down two others out of control. Our losses nil."

General Headquarters, January 13th.

"On the 13th inst. the weather was variable with a strong westerly wind blowing all day. Our machines made repeated attempts at photography and artillery work, but were in most case hindered by clouds. Many bombs were dropped on the enemy's billets and huts, and several thousands of rounds fired into his trenches. Two of our aeroplanes are missing."

Admiralty, January 14th.

"At noon on January 13th naval aircraft carried out a bombing raid on Engel dump. Bombs were observed to burst among sheds. A direct hit is reported, and a large cloud of smoke was seen to rise. All machines returned safely."

General Headquarters, January 14th.

"On the 13th inst. there was a great deal of useful work done in the air, much strenuous fighting taking place. The fine weather enabled photographic and artillery work to be carried out all day. Bombing and attacks with machine-gun fire from low altitudes were also carried out incessantly, over 400 bombs being dropped on a large ammunition dump near Roulers and on hostile billets, huts, and railway junctions. Amongst the targets attacked with machine-

gun fire was a party of the enemy engaged in extinguishing a large fire; casualties were caused and the men scattered, and the fire left to burn at will. In combats seven hostile machines were brought down, and three others were driven down out of control. Our anti-aircraft fire forced another hostile machine to land intact behind our lines, the pilot being captured. Three of our machines are missing.

"During the night of the 13th-14th inst. our night-flying machines dropped bombs on Roulers and Menin. All machines returned safely."

"On the 14th inst. after a long spell of bad weather, our squadrons carried out a most successful raid into Germany in broad daylight, their objective being the railway station and munitions factories at Karlsruhe, in the Rhine Valley, 1½ tons of bombs were dropped with excellent results, bursts being observed on buildings and sidings of the main railway junction in the centre of the town, on the railway workshops, and on the smaller junction in the town. Observers report a very large fire was started in the factories alongside the railway; this is confirmed by photographs taken after the raid. Anti-aircraft fire was very heavy and accurate over the objectives, and several hostile machines attacked the formation without success, as all our aeroplanes reached the objectives, and returned safely."

French.

"On January 4th five German aeroplanes were brought down in fights with our pilots."

"Salonica.—To the north of Lake Prespa French airmen dropped bombs on enemy cantonments and convoys."

Paris, January 5th.

"On January 5th four German aeroplanes were brought down by our pilots, and a fifth by the fire of our special guns."

Paris, January 6th.

"On January 6th, in the daytime, our pilots brought down or seriously damaged six enemy aeroplanes."

"Our bombing squadrons carried out several operations during the night of January 5th-6th. The aniline works of Ludwigsfalen, the railway station of Freiburg-im-Breisgau, the aviation ground of Neubreisach, the factories of Rombach, Maizières, and Hagondange were bombed with many projectiles." (The monthly summary was given in our last issue, p. 33.)

Paris, January 7th.

"During the day of January 9th two German aeroplanes were brought down in aerial combat."

"Salonica.—British airmen bombarded enemy cantonments in the region of Demirhissar [Struma front]."

Paris, January 12th.

"Between January 1st and January 10th our pilots brought down 15 German aeroplanes and one captive balloon. Sub-Lieut. Madon achieved his 20th victory. In addition, our pilots brought down in the enemy lines 12 other machines, the destruction of which, although very probable, cannot be confirmed."

"Our airmen bombarded enemy camps and concentrations north-east of Doiran and in the region of Monastir."

Paris, January 13th.

"The railway station of Tchestovo (north-west of Lake Doiran) has been bombed by British airmen."

Paris, January 14th.

"Allied airmen successfully dropped bombs on the railway from Seres to Drama and on enemy establishments in the regions of Demirhissar and Allghar (north of Vetenik)."

IN PARLIAMENT.

Sir Auckland Geddes on Man-Power.

In his speech in the House of Commons on January 14th, introducing his man-power proposals, Sir Auckland Geddes made several references to aviation, and emphasised the extreme importance of this branch of the service and the industry.

"I will tell you in a few minutes what it is we have to face this year," he said, "but let us keep our sense of perspective, and remember that at sea we must be supreme, in the air we must win supremacy, and on land we must do the best we can to fill the gap that Russia has made until America can take her place, and all the time we have to keep our vital industries going. Industries not vital to the war may have to suffer."

Speaking with regard to German divisions released from the Eastern front, he said:—

"We cannot count that less than 950,000 men will be made available in these ways. They will comprise fighting personnel of all kinds—infantry, artillery (heavy and light), machine-gun teams, aeroplane squadrons, gas companies, and trench mortars."

Dealing with the expansion of the British Army from 700,000 in August, 1914, to over 4,000,000 to-day, he said:—

"As an instance of the expansion, it is of interest to note that the combined Air Service, from a strength of 2,000 in August, 1914, on the 1st August, 1917, stood at over 125,000. Since then it has been further largely expanded, and the limits of its expansion are not yet in sight."

He went on to point out that under the heading of "Provision of Men for the Armed Forces of the Crown," 7,500,000 men had been enrolled, and this took no account of the manufacture of munitions, &c., including aircraft. There were considerable reserves in the Home armies which were to be made available, and those armies were to be readjusted, by the employment of women and other means to enable the demands of the armies overseas to be met from within the Army itself.

Dealing with those young men who are endeavouring to create trouble among workers, Sir Auckland Geddes said:—

"These young men are now threatening to take what they call drastic action; in plain language, they are threatening to hold up the output of ships and aeroplanes in order to force

Italian.

"One hostile aeroplane was brought down by a British airmen near Conegliano, and another machine was brought down by our fire on the left bank of the Piave, east of Maserada."

"Last night, between 2 and 6 in the morning, enemy aircraft carried out raids between the Piave and the Bacchiglione."

"Numerous bombs were dropped in the inhabited parts of Treviso and Padua. In the former city slight damage was done. There were no casualties. In the latter city, the centre of which was chosen, as usual, as a target with particular fury, some fires broke out. Several private buildings were damaged, and six people, including two women and one old man, were wounded."

Rome, January 4th.

"On the morning of January 6th one of our seaplane squadrons effectively bombarded the military works at Lissa (one of the Southern Dalmatian Islands) and the huge warehouses on the quays in the harbour. In spite of a heavy squall all our machines returned to their base."

Rome, January 11th.

"During the day atmospheric conditions were favourable to aerial activity. Three enemy machines, for one of which British airmen accounted, were brought down."

Rome, January 12th.

"Four enemy aeroplanes were brought down by British airmen. A fifth machine hit by our airmen fell in flames near Lusiana. Our machines bombarded with visible results military establishments in Sugana Valley."

Rome, January 13th.

"Magazines and encampments were effectively bombarded with 1,600 kilos. of projectiles by our bombardment machines. A bold reconnaissance was carried out by seaplanes on the Livenza. Our airmen brought down two enemy machines at Camposampiero and to the south-east of Asiago. British airmen accounted for a third machine in Seren Valley."

Belgian.

"Our airmen, taking advantage of the fine weather, to-day carried out 47 flights, 21 of which were by chaser planes."

German.

"On January 4th and 5th, as a result of aerial encounters and by fire from the ground, 15 enemy aeroplanes and four captive balloons were shot down."

Berlin, January 10th.

"In December the enemy losses in aircraft on the German front amounted to nine captive balloons and 119 aeroplanes, of which 47 came down behind our lines. The rest were observed to fall behind the enemy's positions. We have lost in battle 82 aeroplanes and two captive balloons."

Berlin, January 13th.

"In numerous aerial encounters yesterday [Saturday] six enemy aeroplanes and three captive balloons were shot down."

Turkish.

"Palestine Front.—A fleet of aeroplanes, composed of from 12 to 14 machines, attacked one of our hangars. As a result of our land and air defensive measures two enemy machines were brought down. Of the occupants three were dead and a fourth seriously wounded. Our hangar was in no way damaged."

"Forty bombs were dropped by our aeroplanes on enemy works. Numerous successful hits were observed. In spite of a violent reply all our machines returned safely."

Constantinople, January 10th.

The Government to send out the wounded men again and again, to force the Government to drag out their fathers, and to force the Government to stop the leave of the men at the front. [Hon. Members: "Traitors!"] I believe that if they do they will meet such a blast of hatred and contempt that will surprise them. Think of the monstrosity of the claim of these young men—that we should send out the wounded again and again to fight for them while they draw high wages, that we should take their fathers and send them out while they stay at home and draw high wages, and that we should stop the leave of men from the front while they stay at home and draw high wages."

Dealing with questions of labour supply, Sir Auckland Geddes said the prospective demand was for 320,000, of which one-third was divided between the War Office for aerodrome construction, the Board of Trade for Timber Production, the Office of Works and other Departments.

On the question of utilising existing labour to the best advantage, Sir Auckland Geddes said:—

"The Government has instructed all Departments who are contemplating the erection of new premises to make full investigation as to whether existing factories can be used instead of building new factories. I may take the example of the cotton industry in Lancashire. As the House is aware, the imports in raw cotton have been considerably restricted. Preliminary arrangements have already been made for the utilisation of certain factories in Lancashire for the production of aeroplane parts, and it is hoped that other factories there may be used for the assembling and manufacture of aeroplanes."

The Air Board and the British Museum.

LORD SUDELEY, in the House of Lords, called attention to the proposed appropriation of the British Museum to the purposes of the Air Ministry, and of its branch, the Natural History Museum at South Kensington, for other public offices. He was confident, he said, that the decision to appropriate the building was arrived at by the Government before they had been able to obtain full information. All the learned societies throughout the country and all the great authorities, had protested against the proposal to

appropriate so great a national trust. The idea was an absurd one, especially in view of the fact that other buildings were available for the purpose. The accommodation of the Hotel Cecil, he understood, had not been fully utilised. The Port of London Authority's buildings and the Bethlem Hospital buildings could also be utilised for the purpose of the Air Ministry. The Natural History Museum had done an immense amount of work for war services.

Earl Curzon said that, as regarded the British Museum, he was glad to announce that for the accommodation of the Air Ministry it was no longer necessary to appropriate the building. Meanwhile, however, two floors of the new wing of the museum had for some time been occupied for war purposes. The progressive removal of national treasures to places of greater safety, which was being steadily pursued, would enable a still larger space of the museum to be used for these purposes, and that space, with the consent of the trustees, and in consultation with officials, would be utilised for the accommodation of other non-combatant departments, similar

to those already housed in the museum. As to the Natural History Museum, it had been found, after detailed examination, that any attempt to convert the galleries into public offices would involve the closing of the building to the public, extensive internal rearrangements and the consumption of an enormous amount of labour and material. In these circumstances, it had been decided that there was no necessity sufficiently urgent to warrant the use of the Natural History Museum as had been contemplated.

Aircraft Factory, Dublin.

MR. FIELD, on January 14th, asked the Parliamentary Secretary to the Air Board whether it is intended to establish an aircraft factory in Dublin, seeing that labour, materials, and site are available for that purpose?

Sir L. Worthington Evans: A proposal of this nature which was put forward by the hon. member for Waterford is under consideration, and I hope that a decision will shortly be reached in the matter.



SIDE-WINDS.

A HAPPY party, including Flight Lieut. W. E. McConnell, R.N., Warrant Officer Russell Gordon, R.N., Mr. C. E. Fellowes (Works Manager, Merton), Mr. S. Rassmussen (Clapham), Mr. J. Levy (Clapham), Mr. A. Maber (Merton), Mr. A. R. Edmonds, Mr. G. W. Perkins, Mr. R. Record, Mr. J. G. Taylor, Mr. J. H. Ingham, and Mr. Haydn Sanders, gathered at the Holborn Restaurant the other day at the invitation of Mr. R. F. Dagnall, Manager of Airships, Ltd., Merton, Clapham and Wandsworth.

In submitting the principal toast, Mr. Sanders referred to the fact that Airships, Ltd., was one of the few pioneer aviation firms that had weathered the storms that invariably raged about the heads of great new ideas, and was fortunate in having at its head two such men as Mr. Dagnall and Mr. Fellowes, both of whom were enthusiasts in aeronautics years before the war and possessed valuable practical and technical knowledge which had been placed unreservedly at the service of the nation. He recalled the fact that they were actively associated with the Willows airship prior to the war, and were entrusted with the building of the first observation balloon, and of their undiminished enthusiasm for new ideas.

Lieut. McConnell testified to the sincere and constant insistence of the firm that the standard of work turned out by their employees should be the highest attainable, and that in carrying out suggestions for improvements and new designs the valuable technical and practical knowledge possessed by Mr. Dagnall and Mr. Fellowes was always placed freely at the service of the Inspection Departments. As a practical aviator (for until his recent accident incapacitated him he was an active service member) he had no hesitation in asking the Services to have every confidence in the work sent out by Airships, Ltd.

An interesting feature of the gathering was the sale of a lead pencil for three guineas for the benefit of distressed sailors.

MERCEDES engines on hostile aircraft have played so prominent a part in the war in the air that some little interest may attach to the fact that one of the earlier 40 h.p. models that once formed part of a famous racing car is now employed in driving a small dynamo at a certain important works in the country. It reached this destination via the scrap heap and the shops of the New Welding Company, by whom it was rendered fit for service after lying idle and neglected for a long time. Before being subjected to the ministrations of the Rosebery Avenue establishment, however, it was in an almost hopeless state; not only were there extensive cracks, but the camshaft and countershaft bearings, as well as the cylinder faces, were badly out of truth. In fact, it seemed hardly possible that a successful and economical repair could be made, but once again the apparently impossible was accomplished.

MESSRS. J. B. BROOKS AND CO., LTD., come before their clients for 1918 under circumstances which are quite without precedent. Although their resources are very considerable, as are also their facilities, in spite of the difficulty in obtaining materials, they have endeavoured since the outbreak of war to do what they can for Government Departments, but they have, at the same time, endeavoured to satisfy their ordinary customers as far as possible, and they believe that their friends have duly appreciated it. They will continue to do this during the coming year, but they wish to make it quite clear that orders

given to travellers for forward deliveries can only be accepted on the terms that are they invoiced at the price at which they can be manufactured at the date of despatch. The reputation of this firm, added to a careful regard for after-the-war business, will be your guarantee that you will continue to be as well served as the company has endeavoured to serve you in the past.

THE Christmas Draw, organised by the workers of the Aircraft Manufacturing Co., Ltd., Hendon, in aid of St. Dunstan's Hostel for Blinded Sailors and Soldiers, resulted in this excellent institution receiving £267 7s. The good work of the Hon. Secretaries, Messrs. E. J. Riley and J. R. Boughton, resulted in 5,747 tickets being sold, aggregating £287 7s., and the prizes totalled £20. No. 2778 won the first prize of £5; No. 427 that of £3; and No. 4038, £2.

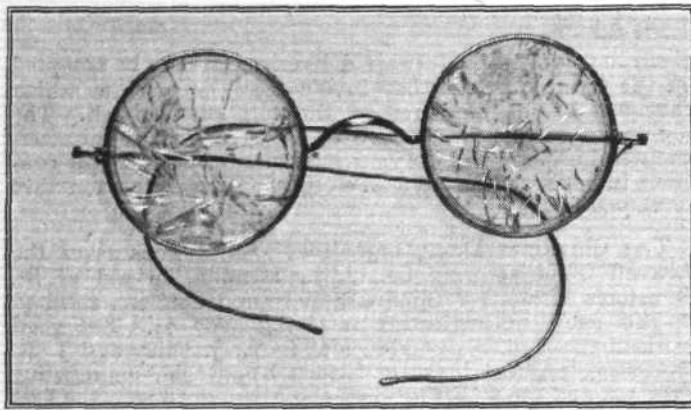
Most people give very little thought, if any, to the hazards which are cheerfully accepted by the test pilot when called upon to put a new 'bus through its paces, and it is a graceful



Mr. Herbert Sykes, the Whitehead pilot, who has been awarded the Medal of the Order of the British Empire for "courage in testing aircraft in spite of severe accidents."

tribute to the importance of the work of these men that Mr. Herbert Sykes, the Whitehead pilot, should have had the Medal of the Order of the British Empire conferred upon him for "courage in testing aircraft in spite of severe accidents." It will be remembered that some little time ago Mr. Sykes was severely injured in an accident but since he has recovered he has been as hard at work as ever.

FROM time to time we have referred to the excellent qualities of Triplex, and most of our readers are therefore fully aware of the great value and utility of the invention. At the same time it cannot be too often urged upon those engaged in flying, in which eyesight plays such an important part, how essential it is to avoid any unnecessary risks of the eyes being injured by flying fragments of glass. Accidents are bound to happen, and although a pilot may come through several smashes without a scratch, he would be foolish indeed to be immune for all time if he did not take precautions. We are very glad therefore to reproduce the accompanying photo-



graph showing a pair of Triplex optical lenses which have received two shots from a 12-bore gun; choked both barrels fired at 35 yards. No. 5 shot. They constitute a convincing testimony as to the efficacy of Triplex, but we would refer our readers to the letter written to the *Lancet* by the doctor who conducted the tests which appears in the Triplex advertisement on page vii. It is not our practice to refer our readers to announcements in the advertisement page, but the exceptional merits of Triplex is the excuse, if any is needed.



The Opportunities of the Air Service.

INSPIRING and encouraging was an address given to the students of the Aeronautical Section at East London College on Tuesday by Brig.-General J. G. Hearson, D.S.O., R.E., in charge of the Training Division of the R.F.C. He pointed out that although the Air Service was small compared with the Army and Navy, it had grown beyond the hope of a large number of people, and it was going to grow in the future beyond the imagination of most people not directly connected with it. Not only would it grow in numbers, but there would be growth in power. Aeroplanes had developed in speed in the last three years from 60 miles an hour to the present machines, which could go at 140 miles. Accuracy of machine-gun fire and easy manœuvring in the air had developed to such an extent that one could not compare the present day with the past of only yesterday, and the development which those connected with the Air Service foresaw in the near future was going to be just as astonishing.

He went on to say that the idea that "the larger the show" the less important the individual was certainly a great fallacy as far as the Air Service was concerned. The opportunity to an individual in that service of making his way was almost boundless. How had the great pilots of the war made their names? Not by luck, but by sheer hard work, by learning all the details of their profession. By way of illustrating the importance of asking questions, he gave his own experience. "I went on active service as a pilot with only 13½ hours' flying experience and an education on the ground which was the result of asking questions. Many of those questions were answered wrongly, and many were not answered at all." He congratulated his audience on the splendid facilities at their disposal.

Flying officers had a very interesting life, as they felt new things which infantry and gunnery officers never saw and never would be told. They looked on the whole of the

battle with a much broader view, and even had conversations with generals.

"You have in the Air Service tremendous opportunities for the individual, and my advice to you is to go into the finest and biggest service of the future and win."

"The Modern Aeroplane."

THE lecture by Capt. F. S. Barnwell, R.F.C., on the above subject, which should have been delivered on Jan. 8th, is to be given at the Birmingham and Midland Institute at Birmingham on Jan. 25th at 8 p.m.

The R.F.C. Aid Committee.

IN our reference to the work of the Royal Flying Corps Aid Committee in a recent issue of "FLIGHT," by a slip of the pen the Headquarters were given as Surrey House, Surrey Street, whereas the correct address is Surrey House, Marble Arch, W.I.

Shooting Eagles on the Wing.

MEETING a pair of eagles not far from Mount Olympus, Flight-Capt. Mortureux, of the French Army at Salonica, is said to have shot them down on the wing. They were subsequently stuffed at Salonica.

NEW COMPANIES REGISTERED.

AERONAUTS, LTD., 48-5, Battersea Park Road, S.W.—Capital £1,000, in £1 shares. Engineers, &c. Permanent director: J. Draper.

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P. O. V. AIRCRAFT CO., LTD., Princess Street, Richmond, Surrey.—Capital £10,000, in £1 shares.

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PUBLICATIONS RECEIVED.

"An Airman's Wife." London: Herbert Jenkins, Ltd. Price 5s. net.

Chasseurs de Boches. By Jacques Mortane. Paris: L'Edition Francaise Illustree, 30 Rue Provence. Price 3fr. 50.
Daily Calendar. Pirelli Tyres, 144, Queen Victoria Street. E.C. 4.



Aeronautical Patents Published.

Applied for in 1916.

The numbers in brackets are those under which the Specifications are printed and abridged, &c.

Published January 24th, 1918.

15,896. A. C. GERREBOS and H. GOOSSENS. Aeroplane control mechanism. (112, 140.)

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